

CENTRAL VALLEY FLOOD MANAGEMENT PLANNING PROGRAM



Public Draft

2012 Central Valley Flood Protection Plan

Attachment 9E: Existing Conservation Objectives from Other Plans

January 2012

This page left blank intentionally.

Table of Contents

1.0	Introduction.....	1-1
2.0	Review of Plans.....	2-1
2.1	Completed Regional Conservation Planning Efforts.....	2-1
2.1.1	Natomas Basin Habitat Conservation Plan.....	2-1
2.1.2	San Joaquin County Multi-Species Habitat Conservation Plan and Open Space Plan.....	2-3
2.1.3	PG&E San Joaquin Valley Operation & Maintenance Habitat Conservation Plan	2-4
2.1.4	East Contra Costa County Habitat Conservation Plan and Natural Communities Conservation Plan	2-5
2.1.5	San Joaquin River Restoration Program	2-7
2.1.6	Central Valley Project-State Water Project Operations Criteria and Plan and Associated Biological Opinions	2-8
2.1.7	CALFED Multi-Species Conservation Strategy.....	2-10
2.1.8	Central Valley Project Improvement Act Programs.....	2-11
2.1.9	Central Valley Joint Venture	2-14
2.1.10	Cosumnes River Preserve Management Plan.....	2-14
2.1.11	Sacramento River National Wildlife Refuge Comprehensive Conservation Plan	2-16
2.1.12	Sacramento, Delevan, Colusa, and Sutter National Wildlife Refuges Final Comprehensive Conservation Plan and Environmental Assessment	2-18
2.1.1	DWR's Oroville Facility Federal Energy Regulatory Commission License Protection, Mitigation and Enhancement Measures.....	2-19
2.2	Regional Conservation Planning Efforts in Progress.....	2-20
2.2.1	Bay-Delta Conservation Plan.....	2-20
2.2.2	Solano Multi-Species Habitat Conservation Plan.....	2-22
2.2.3	South Sacramento Habitat Conservation Plan.....	2-22
2.2.4	Butte Regional Habitat Conservation Plan /Natural Community Conservation Plan	2-23
2.2.5	Yuba/ Sutter County Natural Community Conservation Plan/Habitat Conservation Plan	2-25
2.2.6	Yolo County Natural Heritage Program	2-25
2.2.7	Placer County Conservation Plan	2-27

2.2.8	Butte Sink, Willow Creek-Lurline, and North Central Valley Wildlife Management Areas Comprehensive Conservation Plan	2-29
2.2.9	Public Draft Recovery Plan for Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and Distinct Population Segment of Central Valley Steelhead	2-29
2.3	Plans Identifying Specific Geographic Areas Without Quantifying Conservation Measures	2-30
2.3.1	Draft Recovery Plan for the Giant Garter Snake	2-30
2.3.2	Draft Recovery Plan for the Least Bell's Vireo	2-31
2.3.3	Valley Elderberry Longhorn Beetle Recovery Plan	2-32
2.3.4	Bank Swallow Recovery Plan	2-33
2.3.5	California Red-Legged Frog Recovery Plan	2-33
2.3.6	Recovery Plan for Upland Species of the San Joaquin Valley, California	2-34
2.3.7	The Nature Conservancy Sacramento River Project	2-35
2.3.8	Sacramento River Conservation Area Forum	2-35
2.3.9	Comprehensive Management Plan for the Sacramento River Wildlife Area	2-36
2.3.10	Yolo Bypass Wildlife Area Land Management Plan	2-37
2.3.11	California Water Plan	2-38
2.3.12	State and Regional Water Board Plans	2-40
3.0	References	3-1
4.0	Acronyms and Abbreviations	4-1

List of Tables

Table 1-1.	Summary of CVFPP Relationships to Conservation Objectives from Other Conservation Plans ¹	1-3
------------	--	-----

1.0 Introduction

The Central Valley Flood System Conservation Framework (Conservation Framework), in conjunction with the Central Valley Flood Protection Plan (CVFPP), geographically overlaps with multiple regional and collaborative conservation plans that have either been implemented or planned for the Sacramento and San Joaquin valleys. Regional planning efforts such as the Conservation Framework are most effective when coordinated with similar programs and plans to the maximum extent possible. The Conservation Framework is the first phase of a comprehensive and integrated planning effort, leading to a longer-term Conservation Strategy that will be part of the 2017 CVFPP update. When developing the Conservation Strategy¹ as part of the 2017 CVFPP, coordination among similar, related conservation and collaborative planning efforts is essential to determine if the Conservation Strategy can contribute to the shared conservation objectives of other plans or programs while meeting its own objectives. Similarly, understanding the potential flood-risk-reduction benefits associated with implementing other conservation or collaborative planning efforts can aid in the development of the Conservation Strategy.

Coordinating with other planning efforts may increase economy and efficiency. In addition, from an ecological standpoint, coordinating the Conservation Strategy and other planning efforts can provide greater opportunities for effective, integrated, landscape-level conservation. Wildlife and natural resource agencies have limited staffing and funds, so they support and encourage participation in existing plans as further justification for coordination. Integration of related planning efforts could improve the effectiveness of individual plans' important ecological objectives, such as improving habitat connectivity and increasing the size of habitat preserves.

The purpose of this attachment is to describe completed and ongoing planning efforts that have regional, geographically based, and/or quantifiable conservation measures for species and habitats that may be relevant to the Conservation Strategy. All of the plans and programs described overlap at least partially with the State Plan of Flood Control (SPFC) Planning Area or Systemwide Planning Area. The list is not

¹ The Conservation Strategy will provide a comprehensive approach for DWR to (1) achieve the environmental goals and objectives of the Central Valley Flood Protection Act, FloodSAFE, and CVFPP; and (2) implement DWR's environmental stewardship policy. This Conservation Strategy may include regional permitting plans such as NCCPs or HCPs.

comprehensive, but provides examples of efforts that should be considered in developing the Conservation Strategy. Plans not included here could be identified and considered as the Conservation Strategy is developed. In this attachment, completed planning efforts are summarized first, followed by those that are ongoing and in progress. Regional programs with defined conservation goals and measureable biological objectives are also included. Potential relationships between these plans or programs and the Conservation Strategy are summarized in Table 1-1. Some programs, such as identifying Total Maximum Daily Loads and implementing Integrated Regional Water Management Plans, may support conservation efforts, but their objectives are dissimilar to those of the Conservation Framework (i.e., focused on meeting water quality standards), so these were not included.

This attachment is not intended to present an analysis of each plan in detail. Rather, the intent is to identify areas of potential overlap between relevant plans and the upcoming Conservation Strategy. As the Conservation Strategy develops and/or is implemented, potentially synergistic areas and areas of potential conflict between the Conservation Strategy and individual plans can continue to be identified.

Table 1-1. Summary of CVFPP Relationships to Conservation Objectives from Other Conservation Plans¹

Plan Name	Selected Habitat Targets from Other Conservation Plans				Selected Species Targets from Other Conservation Plans										Geographic Overlap	
	Riparian/ SRA	Wetland	Seasonal Floodplain	Riverine Aquatic	Delta Button Celery	Salmonids	Giant Garter Snake	VELB	Yellow-Billed Cuckoo	Bank Swallow	Swainson's Hawk	Least Bell's Vireo	Riparian Brush Rabbit	Riparian Woodrat	State Plan of Flood Control	Systemwide Planning Area
<i>Completed Regional Planning Efforts</i>																
Natomas Basin HCP		+					+	+			+				++	
San Joaquin County Multi-Species HCP and Open Space Plan	+	+			+		+	+	+	+	+		+	+	+	+
PG&E O&M HCP	+	+	+	+	+		+	+		+	+		+	+	++	++
East Contra Costa County HCP/NCCP	+	+					+				+					+
San Joaquin River Restoration Program	+		+	++		++									++	++
Central Valley Project-State Water Project OCAP and Associated BOs	+		+	++		++									++	++
CALFED Multi-Species Conservation Strategy	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
Central Valley Improvement Act Programs	++		+	++		++	+	+	+	+	+	+	+	+	++	++
Central Valley Joint Venture	++	++							++	++	++	++			++	++
Cosumnes River Preserve Management Plan	+	+	++	+		++	+	+			+	+			+	+
Sacramento River NWR CCP	++	+		+		+	+	+	+	+	+	+			++	+
Sacramento, Delevan, Colusa, and Sutter NWR CCP/EA	+	+	++	+		+	+		+		+				++	+
DWR's Oroville FERC license	+	+	+	++		++	+	+							++	+
<i>Regional Conservation Planning Efforts in Progress</i>																
Bay-Delta Conservation Plan	++	++	++	++	++	++	++	+	++	+	++	+	+	+	+	++

Table 1-1. Summary of CVFPP Relationships to Conservation Objectives from Other Conservation Plans¹ (contd.)

Plan Name	Selected Habitat Targets from Other Conservation Plans				Selected Species Targets from Other Conservation Plans										Geographic Overlap	
	Riparian/ SRA	Wetland	Seasonal Floodplain	Riverine Aquatic	Delta Button Celery	Salmonids	Giant Garter Snake	VELB	Yellow-Billed Cuckoo	Bank Swallow	Swainson's Hawk	Least Bell's Vireo	Riparian Brush Rabbit	Riparian Woodrat	State Plan of Flood Control	Systemwide Planning Area
Solano Multi-Species HCP	+	+		+		+	+	+			+				+	+
South Sacramento HCP		+					+	+			+				+	+
Butte Regional HCP/NCCP	+	+				+	+	+	+	+	+				+	+
Yuba and Sutter County HCP/NCCP	+	+				+	+	+	+	+	+				++	+
Yolo County Natural Heritage Program	++	++						+	+	+	+				+	
Placer County Conservation Plan	+	+				+	+	+		+	+				+	+
Butte Sink, Willow Creek-Lurline, and North Central Valley WMA CCP	+	+		+											++	+
Draft Recovery Plan for Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-run Chinook Salmon ESUs and Central Valley Steelhead DPS	++		++	++		++									++	++
<i>Plans Identifying Specific Geographic Areas without Quantifying Conservation Measures</i>																
Draft Recovery Plan for the Giant Garter Snake		++					+								+	++
Draft Recovery Plan for the Least Bell's Vireo	++											+			+	+
Valley Elderberry Longhorn Beetle Recovery Plan	++							++							++	++
Bank Swallow Recovery Plan	+	+	+	+						++					+	++
California Red-legged Frog Recovery Plan	+	+	+	+												+

Table 1-1. Summary of CVFPP Relationships to Conservation Objectives from Other Conservation Plans¹ (contd.)

Plan Name	Selected Habitat Targets from Other Conservation Plans				Selected Species Targets from Other Conservation Plans										Geographic Overlap	
	Riparian/ SRA	Wetland	Seasonal Floodplain	Riverine Aquatic	Delta Button Celery	Salmonids	Giant Garter Snake	VELB	Yellow-Billed Cuckoo	Bank Swallow	Swainson's Hawk	Least Bell's Vireo	Riparian Brush Rabbit	Riparian Woodrat	State Plan of Flood Control	Systemwide Planning Area
Recovery Plan for Upland Species of the San Joaquin Valley, California	+												++	++		+
The Nature Conservancy Sacramento River Project	++	+	+	++		++		++	++	++	+	++			++	++
Sacramento River Conservation Area Forum	++	+	+	+		++		++	++	++	+	++			+	++
Cosumnes River Preserve Management Plan	+	+	++	+		++	+	+			+	+			++	++
CMP for the Sacramento River Wildlife Area	++	++	++	++		+	+	+		+					++	++
Yolo Bypass Wildlife Area LMP	++	++	++	+		++	++		+		++				++	+
California Water Plan	+	+	+	+											++	++
State Water Resources Control Board Plans				+											+	+

Notes:

¹ Magnitude of relationship between CVFPP and other conservation plan or program specified as follows:

+ A probable or potential relationship exists. The Conservation Strategy is not likely to significantly contribute to the other conservation plan's conservation objectives, or the conservation target is a secondary focus of the conservation plan. For geographic overlap, there is a minor spatial overlap between the conservation plan area and one of the CVFPP planning boundaries.

++ A significant relationship exists. The Conservation Strategy could significantly contribute to the other conservation plan's conservation objectives. For geographic overlap, there is a large spatial overlap between the conservation plan and one of the CVFPP planning boundaries.

Key:

BO = biological opinion

CALFED = California Bay-Delta Program

CCP = Comprehensive Conservation Plan

CMP = Comprehensive Management Plan

CVFPP = Central Valley Flood Protection Plan

DPS = Distinct Population Segment

EA = Environmental Assessment

ESU = Evolutionarily Significant Unit

FERC = Federal Energy Regulatory Commission

HCP = Habitat Conservation Plan

LMP = land management plan

NCCP = Natural Communities Conservation Plan

NWR= National Wildlife Refuge

OCAP = operations criteria and plan

O&M = operations and maintenance

PG&E = Pacific Gas & Electric Company

VELB = valley elderberry longhorn beetle

WMA= Wildlife Management Area

2012 Central Valley Flood Protection Plan
Attachment 9E: Existing Conservation Objectives from Other Plans

This attachment supports and recognizes key conservation criteria and considerations that are important as the Conservation Strategy is developed:

- Uses existing information to the greatest extent possible for efficiency and to inform the Conservation Strategy regarding potential conservation goals.
- Recognizes that multiple conservation plans or collaborative planning efforts have been completed, are in development, or are being implemented:
 - In whole or in part, the plans address many of the key species and habitats that occur within the SPFC Planning Area and/or Systemwide Planning Area.
 - The plans help identify conservation needs and priorities within the flood management system.
- Highlights potential conservation partnerships for the California Department of Water Resources (DWR) in implementing the Conservation Strategy, specifically:
 - Describes opportunities to cost-share on conservation projects.
 - Describes opportunities for DWR to simultaneously meet its own conservation goals and those of other plans or programs through specific projects.
- Identifies completed conservation planning efforts that provide “lessons learned” to be applied to the Conservation Strategy.

2.0 Review of Plans

This section summarizes various regional conservation planning efforts, including the following:

- Completed regional conservation planning efforts
- Regional conservation planning efforts in progress
- Plans that identify specific geographic areas but do not provide quantifiable conservation measures

2.1 Completed Regional Conservation Planning Efforts

Completed regional conservation planning efforts include several habitat conservation plans (HCP) and HCP/natural communities conservation plans (NCCP), large-scale conservation programs, and refuge comprehensive conservation plans described below, including goals and measurable objectives.

2.1.1 Natomas Basin Habitat Conservation Plan

The *Natomas Basin Habitat Conservation Plan* (NBHCP) proposes to acquire 8,750 acres of mitigation lands to benefit giant garter snake (*Thamnophis gigas*) and Swainson's hawk (*Buteo swainsonii*) (City of Sacramento et al., 2003). The NBHCP supports applications for incidental take permits under the federal Endangered Species Act (ESA) and the California ESA. The NBHCP intends to create a system of reserves, with both wetland and upland components, which support viable populations of giant garter snake, Swainson's hawk, and other species covered by the HCP (covered species). The overall goals for the NBHCP include the following:

- Establish and manage, in perpetuity, a biologically sound and interconnected habitat-reserve system that mitigates impacts to covered species resulting from covered activities and provides habitat for existing and new viable populations of covered species.
- Implement an adaptive management program that responds to changing circumstances affecting covered species and their habitats.

- Preserve open space and habitat that may also benefit local, non-listed, and transitory wildlife species not identified within the NBHCP.
- Ensure that direct impacts of authorized development upon covered species are avoided or minimized to the maximum extent practicable.

To achieve the above goals, the NBHCP identified the following objectives:

- Minimize conflicts between wildlife and human activities, including conflicts resulting from airplane traffic, roads and automobile traffic, predation by domestic animals, and harassment by people.
- Maintain and operate flood control, irrigation, and drainage facilities in a manner that minimizes take of covered species and promotes vegetative cover that enhances habitat values for covered species, consistent with relevant water agencies' legal obligations.
- Ensure connectivity between The Natomas Basin Conservancy (TNBC) reserves to minimize habitat fragmentation and species isolation. Connections between reserves will generally take the form of common property boundaries between reserves, waterways (primarily irrigation and drainage channels) passing between reserves, or an interlinking network of water supply channels or canals.
- Within individual TNBC reserves, provide a mosaic of habitats that support both wetland and upland species and are configured to support species that use both types of habitat.
- Implement monitoring programs with qualitative or quantitative monitoring methods to evaluate management objectives and strategies for the reserve system.
- Increase the diversity and abundance of covered species on reserve lands.
- Revise the reserve design and management based on the most current biological data.

For giant garter snake, approximately 50 percent of the acquired lands would be in rice production, 25 percent enhanced as managed marsh, and 25 percent as upland habitat. The proportion of marsh habitat may be increased to as much as 75 percent of mitigation lands if certain conditions are met. Approximately 80 percent of the lands would be preserved in the basin and 20 percent of lands may be preserved outside the basin. The plan

identifies the system of agricultural water supply and drainage channels maintained and operated by U.S. Department of Interior, Bureau of Reclamation (Reclamation) District 1000 and the Natomas Central Mutual Water Company as the primary opportunity for giant garter snake habitat connectivity between reserves.

For Swainson's hawk foraging habitat, 3,372 acres of high- and moderate-quality upland habitat would be provided within mitigation land reserves. The NBHCP requires that one habitat block within the reserve system be a minimum of 2,500 acres, and the balance of reserve lands will be in habitat blocks that are a minimum of 400 acres (City of Sacramento et al., 2003).

The entire NBHCP planning area is within the SPFC Planning Area boundary. Conservation Strategy actions may contribute to NBHCP conservation objectives if they result in preserving, restoring, or enhancing giant garter snake aquatic or upland habitat or Swainson's hawk foraging habitat within the Natomas Basin or in adjacent areas outside the Natomas Basin (e.g., Knagg's Ranch in Yolo County, northern Yolo Bypass, southern Sutter Bypass). These actions may not directly contribute to the habitat acreage objectives of the NBHCP, but may increase the regional availability and quality of habitat for the species covered by the NBHCP.

2.1.2 San Joaquin County Multi-Species Habitat Conservation Plan and Open Space Plan

The *San Joaquin County Multi-Species Habitat Conservation Plan* (SJCMShCP) and Open Space Plan is a county-wide plan for conserving species and their habitats, consistent with the California and federal ESAs (SJCCG 2000). The SJCMShCP is also intended to support applications for incidental take permits under the California and federal ESAs. The SJCMShCP covers 97 plant, fish, and wildlife species, including several riparian- and wetland-dependent species that would likely be considered within the Conservation Strategy.

The primary goal of the SJCMShCP is to preserve a variety of habitat types throughout the county, including grasslands and vernal pools, agricultural land, riparian areas, perennial wetlands, and other aquatic habitats. It will preserve an estimated 100,841 acres of habitat over the plan's 50-year lifespan. Additionally, the SJCMShCP calls for establishing a 1,200-foot-wide, undeveloped wildlife corridor along much of the San Joaquin River (from Stewart Tract to the Stanislaus/San Joaquin County border). The measureable biological success criteria of the SJCMShCP are described below.

- Habitat acquisition and protection through the establishment of preserve lands precisely balances habitat losses permitted under the SJCMShCP.
- At a minimum, existing habitat quality on SJCMShCP preserve lands is maintained, and, where possible, demonstrable increases in habitat quality of preserve lands are achieved.
- Populations of covered species on SJCMShCP preserve lands are stabilized and improved where possible.

The SJCMShCP planning area includes portions of the SPFC Planning Area and the Systemwide Planning Area, as well as additional areas outside their boundaries. Conservation Strategy actions may include fee simple land acquisitions or easement acquisitions that could preserve riparian and wetland habitat within San Joaquin County; these actions would directly contribute to the conservation goals of the SJCMShCP. Additionally, purchase of flood easements or conservation easements as part of Conservation Strategy actions along the San Joaquin River (e.g., to create transitory storage) could contribute to the SJCMShCP goal of creating an undeveloped wildlife corridor along this reach.

2.1.3 PG&E San Joaquin Valley Operation & Maintenance Habitat Conservation Plan

The *PG&E San Joaquin Valley Operation & Maintenance Habitat Conservation Plan* (PG&E HCP) is a multi-species HCP for routine operation and maintenance (O&M) activities in the San Joaquin Valley (Jones & Stokes, 2006). The PG&E HCP supports applications for incidental take permits under the California and federal ESAs. The biological goal of the San Joaquin Valley PG&E HCP is to contribute to the conservation of natural communities and their associated covered species in the planning area. The natural communities include wetlands, woodlands, grasslands, woody riparian, and upland scrub.

Three biological objectives were identified:

1. Acquire, protect, manage, and maintain lands for the benefit of covered species to achieve compensation for project habitat effects.
2. Locate compensation lands within regions where project effects occur.
3. Purchase or dedicate land near other preserved areas to maximize the conservation values of the land and assist in meeting land protection goals of existing recovery plans.

The PG&E HCP identifies 30 avoidance and minimization measures designed to reduce effects on species, and compensation to offset effects that cannot be avoided or minimized. To compensate for habitat loss in the 246,350-acre plan area, temporary effects will be mitigated at a ratio of 0.5:1 and permanent effects will be mitigated at a ratio of 3:1; total habitat mitigation is expected to be approximately 1,350 acres over the 30-year permit term. The PG&E HCP covers 23 wildlife and 42 plant species, including aquatic and riverine species such as the valley elderberry longhorn beetle (VELB, *Desmocerus californicus dimorphus*), giant garter snake, Swainson's hawk, bank swallow (*Riparia riparia*), riparian woodrat (*Neotoma fuscipes riparia*), and riparian brush rabbit (*Sylvilagus bachmani riparius*). The PG&E HCP has a specific conservation target identified for these covered species.

The PG&E HCP planning area includes portions of the SPFC Planning Area and the Systemwide Planning Area, as well as additional areas outside their boundaries. Conservation Strategy actions that could contribute to PG&E HCP conservation objectives would include actions that would result in preserving, restoring, enhancing, or creating habitat for covered species in the San Joaquin Valley.

2.1.4 East Contra Costa County Habitat Conservation Plan and Natural Communities Conservation Plan

The conservation strategy for the *East Contra Costa County Habitat Conservation Plan* (ECCCCHCP) and *Natural Communities Conservation Plan* (ECCCCHCP/NCCP) includes creating and managing a fully functioning preserve system that will preserve approximately 23,800-30,300 acres of land under the urban development area (ECCPHCPA, 2006). To compensate for habitat loss, the strategy also proposes to restore or create approximately 424 to 586 acres (under the initial or maximum urban development areas, respectively) of specific habitats and land cover types. Covered species include the giant garter snake, Swainson's hawk, foothill yellow-legged frog (*Rana boylei*), California red-legged frog (*Rana aurora draytonii*), western pond turtle (*Clemmys marmorata*), and tricolored blackbird (*Agelaius tricolor*). Goals of the ECCCCHCP/NCCP related to riparian and instream habitats include:

- Preserve streams and riparian woodland/scrub in the inventory area
- Enhance riparian woodland/scrub to promote native biological diversity and habitat heterogeneity
- Maintain and enhance instream aquatic habitat for covered species and native fish

- Restore streams and riparian woodland/scrub

Measureable objectives of the ECCCHCP/NCCP related to riparian and instream habitats include:

- Protect a minimum of 5 linear miles of stream to compensate for permanent loss of habitat
- Acquire riparian/scrub at a ratio of 2:1 (estimated to be 70 acres for maximum urban development area) and protect as part of the preserve system
- Maintain or increase the cover, width, and connectivity of existing riparian vegetation consistent with current stream and habitat function
- Promote natural fluvial disturbances (e.g., flooding, sediment deposition, and scour)
- Reduce water temperature and temperature variation
- Increase inputs of organic matter where appropriate
- Reduce sediment input and downstream sediment transport and deposition where appropriate
- Maintain and enhance instream structural diversity, where appropriate
- Improve stream flow and connectivity for native aquatic wildlife
- Control or reduce nonnative animals, including bullfrogs and fish
- Restore at least 20 acres of riparian woodland/scrub in addition to that required above as compensation for habitat loss
- Replace riparian woodland/scrub at a ratio of 1:1 in the preserve system to compensate for its loss from covered activities (estimated to be 30 acres with maximum urban development area) and restore species richness and diversity, vegetative cover, wildlife habitat function, and hydrologic function

The ECCCHCP/NCCP contains detailed guidelines for management, enhancement, and restoration techniques for a variety of habitat types, including wetlands, ponds, streams, and riparian woodland. It includes a conservation target of 3,750 acres of habitat for Swainson's hawks.

A portion of the ECCCHCP/NCCP overlaps the Systemwide Planning Area in the Sacramento/San Joaquin Delta (Delta) region of northeastern Contra Costa County. Conservation Strategy actions that could contribute to ECCCHCP/NCCP conservation objectives would include actions within the western Delta that preserve, restore, enhance, or create habitat for covered species, particularly giant garter snake and Swainson's hawk.

2.1.5 San Joaquin River Restoration Program

The San Joaquin River Restoration Program (SJRRP) resulted from a settlement reached in September 2006 between the U.S. Departments of the Interior and Commerce, the Natural Resources Defense Council, and the Friant Water Users Authority. The settlement ended an 18-year lawsuit that sought sufficient fish habitat in the San Joaquin River below Friant Dam to its confluence with the Merced River. Focus species are fall-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and other native fish species. The main habitat objective of the SJRRP is to restore habitat for Chinook salmon and other species of fish native to the San Joaquin River and its tributaries above the confluence with the Merced River (SJRRP, 2009). Specific acreage targets were not included as part of this objective.

The geographic boundary of the SJRRP is entirely contained within the SPFC Planning Area from the confluence with the Merced River to approximately Gravelly Ford, and the remainder of the SJRRP boundary is within the Systemwide Planning Area. Conservation Strategy actions that contribute to enhancing, restoring, or creating additional habitat for Chinook salmon and other salmonid species would also contribute to the SJRRP objectives. Additional habitats would include seasonal floodplain, shaded riverine aquatic (SRA), and spawning gravels, as well as the restoration of flows and geomorphic processes that could potentially result in the eventual formation of these habitats. Although the SJRRP focuses on the upper San Joaquin River, Conservation Strategy actions within the lower San Joaquin River and Delta may contribute to SJRRP objectives. Conservation strategy actions may contribute to increased juvenile salmonid production and escapement from the San Joaquin River. Improved passage of spawning adults through lower river reaches through Conservation Strategy actions would align with SJRRP objectives.

2.1.6 Central Valley Project-State Water Project Operations Criteria and Plan and Associated Biological Opinions

Reclamation's *Long-Term Central Valley Operations Criteria and Plan* (OCAP) defines the Central Valley Project (CVP) and State Water Project (SWP) and their operations, constraints, and legal requirements (Reclamation, 2004). The National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) developed and published biological opinions (BO) that addressed the potential for OCAP implementation to adversely affect federally listed fish. Because of the jeopardy opinion reached by each BO (i.e., implementing the OCAP, as proposed, would jeopardize the continued existence of federally listed species), each agency developed reasonable and prudent alternatives (RPA) to the proposed OCAP that would minimize impacts to federally listed fish (NMFS, 2009a, 2011; Reclamation, 2004; USFWS, 2008). The USFWS BO, which addressed the effects of OCAP implementation on delta smelt (*Hypomesus transpacificus*), was subsequently invalidated in 2011 (USFWS, 2011), and a new BO is currently being written. The NMFS BO and associated RPAs address salmonids, green sturgeon (*Acipenser medirostris*), and other fish species within the Sacramento and San Joaquin valleys and Delta.

The NMFS RPAs describe actions that, if implemented, would not jeopardize the continued existence of listed salmonids and green sturgeon. Many of these RPAs focus on maintaining flows within the Sacramento and San Joaquin rivers and their tributaries to provide suitable habitat conditions for fish (e.g., water temperature, water depth). Several other RPAs focus on restoration of habitat or fluvial-geomorphic processes (e.g., floodplain activation flows, sediment transport, erosion, deposition) necessary to maintain and regenerate aquatic habitat elements for salmonids and green sturgeon. Specific NMFS RPAs with strong potential links to the Conservation Strategy include the following:

- **Action I.1.3** – Spawning Gravel Augmentation on Clear Creek. This RPA is intended to enhance and maintain previously degraded spawning habitat for spring-run Chinook salmon and steelhead (*Oncorhynchus mykiss*) on Clear Creek below Whiskeytown Reservoir.
- **Action I.6.1** – Restoration of Floodplain Rearing Habitat within the Lower Sacramento River Basin. This RPA requires restoration of at least 17,000 to 20,000 acres of seasonal floodplain, with appropriate inundation periods and durations to support juvenile salmonid rearing.

- **Action I.6.4** – Improvements to Lisbon Weir. This RPA requires modifications to the Lisbon Weir to improve fish passage.
- **Action I.7** – Reduction of Migratory Delays and Loss of Salmon, Steelhead, and Sturgeon at Fremont Weir and Other Structures in the Yolo Bypass. This RPA requires modifications to the Fremont Weir to reduce fish stranding and improve fish passage.
- **Action III.2.1** – Spawning Habitat Increase and Quality Improvement on the Stanislaus River with Addition of 50,000 Cubic Yards of Gravel by 2014 and with a Minimum Addition of 8,000 Cubic Yards per Year for the Duration of the Project Actions. This RPA requires augmentation of spawning gravel to create suitable redd sites on the Stanislaus River below New Melones Reservoir.
- **Action III.2.3** – Restoration of Freshwater Migratory Habitat for Juvenile Steelhead by Implementing Projects to Increase Floodplain Connectivity and to Reduce Predation Risk During Migration. This RPA requires any one of several potential actions to improve habitat conditions for juvenile steelhead and to reduce predation on juvenile steelhead. Potential actions could include habitat restoration, creation of offstream habitats (e.g., side channels), floodplain restoration, and similar actions.
- **Action V** – Fish Passage Program. This RPA includes a series of interrelated near-term and long-term actions to initiate salmonid passage around Shasta, Nimbus, Folsom, New Melones, Tulloch, and Goodwin dams and salmonid spawning and rearing in stream reaches above the reservoirs formed by these dams.

The geographic coverage of the NMFS BO includes all current and potential aquatic habitat for salmonids and green sturgeon within the Delta, Sacramento Valley, and San Joaquin Valley- an area that includes and extends beyond the SPFC Planning Area and Systemwide Planning Area. Due to the significant geographic overlap, Conservation Strategy actions that relate to the aquatic and riparian habitats and restoration of natural river processes (through construction of setback levees, removal of levees and bank revetment, removal of fish passage barriers, riparian and floodplain habitat restoration, including creation of new flood bypasses) could contribute to the success of several RPA actions. As the Conservation Strategy is developed, close coordination between the OCAP, and NMFS and USFWS BOs is anticipated.

2.1.7 CALFED Multi-Species Conservation Strategy

The California Bay-Delta Program (CALFED) *Multi-Species Conservation Strategy* (MSCS) describes, largely at a conceptual and programmatic level, habitat acquisition, restoration, and enhancement actions that could be implemented throughout the Sacramento and San Joaquin river systems, including the Delta, to maintain and enhance the Delta's ecological health (CBDP, 2000). The MSCS served as the program-level biological assessment for initiating consultation with the USFWS and NMFS and obtaining a programmatic BO under Section 7 of federal ESA. The MSCS was also submitted to the California Department of Fish and Game (DFG) as a programmatic NCCP. CALFED also includes a number of actions intended to improve the reliability and quality of water diversions from the Delta. Ecosystem enhancement activities within CALFED MSCS include those listed below:

- Acquiring water from sources throughout the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) watershed to provide flows for fish recovery
- Improving Delta outflow during key periods
- Reconnecting Bay-Delta tributaries with floodplains with setback levees, flood easements, and flood bypasses
- Restoring the sediment management regime by relocating instream mining and introducing gravels
- Modifying or eliminating fish passage barriers

The CALFED MSCS covers 244 special-status species and 20 habitats, including all species and major habitat types within the Sacramento and San Joaquin valleys, adjacent areas of the foothills, and the Delta. CALFED's measurable objectives include (CBDP, 2000) the following:

- Restoring 9,000 acres of tidal perennial aquatic habitat and approximately 150 to 330 miles (900 to 1,700 acres) of tidal sloughs within the Delta and San Francisco Bay regions
- Avoiding, minimizing, and compensating for all CALFED impacts on tidal perennial aquatic habitat
- Restoring approximately 1,200 acres of riparian habitat in the Delta region, 200 to 300 acres in the San Francisco Bay region, 3,650 acres in the Sacramento River region, and 5,450 to 5,950 acres in the San Joaquin River region

- Protecting and enhancing 500 acres of existing riparian habitat in the Delta region
- Enhancing and restoring riparian habitat associated with restoration of 18,000 to 26,000 acres of stream channel meander corridors in the Sacramento and San Joaquin river regions

The CALFED MSCS program area largely includes both the SPFC Planning Area and Systemwide Planning Area and areas beyond such as the adjacent San Francisco Bay and Suisun Marsh. As the Conservation Strategy is developed, close coordination with the CALFED MSCS is anticipated. The Conservation Strategy could significantly contribute to the conservation goals of the MSCS, given the large overlap in geographic coverage and likely overlap in the conservation goals, habitat, and species conservation targets of the two strategies.

2.1.8 Central Valley Project Improvement Act Programs

The Central Valley Project Improvement Act (CVPIA), signed into law in 1992, mandates changes in CVP management to protect, restore, and enhance fish and wildlife. There are a number of programs developed to implement the CVPIA (Reclamation, 2011), including several interrelated programs whose geographic boundaries overlap the SPFC Planning Area and Systemwide Planning Area. These programs are:

- Anadromous Fish Restoration Program (AFRP) (3406(b)(1))
- Habitat Restoration Program (HRP) (3406(b)(1) “other”)
- Management of CVPIA Waters (3406(b)(2))
- Instream Water Acquisition Program (WAP) (3406(b)(3))
- Red Bluff Fish Passage Improvement Project (3406(b)(10))
- Clear Creek Restoration Program (3406(b)(12))
- Spawning and Rearing Habitat Restoration Program (3406(b)(13))
- Anadromous Fish Screen Program (AFSP) (3406(b)(21))

These programs are described in more detail below.

The goal of the AFRP is to double the natural production of anadromous fish in Central Valley streams. The AFRP covers all species of anadromous fish in the Sacramento and San Joaquin valleys, including Chinook salmon

and steelhead. The AFRP Restoration Plan (USFWS, 2001) is guiding the long-term development of the AFRP. The plan relies on the authorities and resources provided by the CVPIA to meet its goals in cooperation with other California and federal resource management agencies, public and private organizations, and landowners.

The goal of the HRP is to protect, restore, and mitigate for past fish and wildlife impacts of the CVP not already addressed in the Fish and Wildlife Restoration Activities section of the CVPIA. Initial focus will be on habitats known to experience the greatest percentage of decline in habitat quantity and quality since construction of the CVP, including riparian, aquatic, alkali desert scrub, wetlands, foothill chaparral, valley-foothill hardwood, and grassland. Stabilizing and improving populations of listed and non-listed native species associated with the above habitat types is a related goal of the HRP. The program relies on the authorities and resources provided by the CVPIA to meet its goals in cooperation with other California and federal resource management agencies, public and private organizations, and landowners. The types of actions include acquiring existing habitat for special-status species impacted by the CVP; maintaining, restoring, and enhancing priority habitats for priority species; and conducting studies to determine appropriate actions. Projects completed under the HRP have included riparian restoration at the Sacramento River National Wildlife Refuge (NWR) to benefit VELB, and wetland restoration at the Colusa NWR to benefit the giant garter snake.

The CVPIA Program annually manages 800,000 acre-feet of CVP water to either augment instream flows in Clear Creek, Sacramento, American, and Stanislaus rivers, or to curtail Delta exports for fish, wildlife, and habitat restoration. The program's primary focus is to improve instream conditions for anadromous fishes, primarily salmon and steelhead.

The Instream WAP acquires water from willing sellers to increase flows for fish in support of the AFRP. The main WAP acquisitions for instream flow augmentation have occurred on the San Joaquin River tributaries (Merced, Tuolumne, and Stanislaus rivers) and Battle Creek.

The goal of the Red Bluff Fish Passage Improvement Project is to improve fish passage for anadromous fishes and green sturgeon at the existing Red Bluff Diversion Dam. Scheduled for completion in 2012, a screened pumping plant is being installed that will allow the Diversion Dam gates to be permanently open allowing for free migration of fish while ensuring continued water deliveries to agricultural lands. Goals of the project include allowing passage of 80 to 100 percent of adult spring-run Chinook and 50 to 100 percent of adult green sturgeon, and supplying 115,000 acre-feet of water to the Sacramento NWR.

The goals of the Clear Creek Restoration Program include providing flows to allow sufficient spawning, incubation, rearing, and outmigration for salmon and steelhead, and restoring the stream channel and instream habitat on Clear Creek. Project activities include improving fish passage, reducing erosion in the watershed, channel restoration, providing gravel augmentation, managing flows, and implementing adaptive management and monitoring strategies for the effects of project activities.

The goals of the Spawning and Rearing Habitat Restoration Program include increasing the availability of spawning gravel and rearing habitat lost from the construction and operation of CVP dams. Through this program, gravel augmentation occurs annually on the American, Sacramento, and Stanislaus rivers.

The goal of the AFSP is to protect juvenile anadromous fish from entrainment at priority water diversions throughout the Central Valley and the Sacramento-San Joaquin Delta. Objectives of the program include providing funding and/or technical assistance for fish screen projects, assessing fish entrainment at unscreened diversions, supporting screen/diversion research to determine critical factors resulting in fish losses at diversions and develop cost-effective improvements of fish screen designs, and monitoring and evaluating fish screen effectiveness. AFSP projects contribute to the AFRP goal of doubling natural production of anadromous fish in Central Valley streams.

The Clear Creek Restoration Program area has little geographic overlap with the SPFC Planning Area and Systemwide Planning Area. However, Clear Creek flows into the Sacramento River, and provides important spawning habitat for steelhead and spring-run Chinook salmon. Clear Creek is also the conduit for water delivered to the Sacramento River from the Trinity River and, thus, is strongly linked to the operation of the CVP. The other CVPIA programs have significant geographic overlap with the SPFC Planning Area and Systemwide Planning Area.

Conservation Strategy actions that could contribute to the goals of the various CVPIA programs, most of which focus on anadromous fish and instream habitats, would include actions such as removing fish passage barriers, restoring habitat (including SRA habitat), enhancing aquatic habitat (e.g., addition of spawning gravels), restoring seasonal floodplains (e.g., floodplain lowering, construction of setback levees, construction of new flood bypasses), and restoring natural river processes (e.g., removing bank revetment and levees where not essential for public safety). Modified floodway O&M practices would also contribute to the AFRP's goal and objectives.

2.1.9 Central Valley Joint Venture

The Central Valley Joint Venture (CVJV) is one of six original joint ventures formed under the *North American Waterfowl Management Plan* to coordinate regional waterfowl conservation efforts. It is a collaborative planning group comprising 21 member agencies (primarily California and federal natural resources management and regulatory agencies), nongovernmental organizations, and one corporation (PG&E). The *CVJV Implementation Plan* broadened conservation activities to include numerical objectives for habitats that support shorebirds, waterbirds, and riparian songbirds in the Central Valley (CVJV, 2006).

CVJV objectives have been developed for bird habitat restoration needs in specific geographic areas, including the American, Butte, Colusa, Delta, San Joaquin, Sutter, and Yolo basins and Suisun Marsh. These objectives include 10,000 acres of restored riparian habitat, 12,500 acres of restored semipermanent wetlands, and 108,527 acres of restored seasonal wetlands, the majority of which would be located within either the SPFC Planning Area or Systemwide Planning Area. The CVJV focuses on all migratory birds within the Central Valley, including yellow-billed cuckoo (*Coccyzus americanus*), bank swallow, and least Bell's vireo (*Vireo bellii pusillus*).

The CVJV planning area covers the entire Central Valley, and overlaps the SPFC Planning Area and Systemwide Planning Area as well as areas outside the boundaries of the CVFPP (e.g., Tulare Basin) (CVJV, 2006). Conservation Strategy actions that result in the expansion of riparian and wetland habitat would make significant contributions to the objectives of the CVJV, including active habitat restoration, construction of new flood bypasses, setback levees, removal of levees and bank revetment, revised O&M practices, and similar actions that would either directly restore bird habitat or restore the fluvial and geomorphic processes that contribute to riparian and wetland habitat formation.

2.1.10 Cosumnes River Preserve Management Plan

The *Cosumnes River Preserve Management Plan* (CRPMP) describes how the Cosumnes River Preserve will be managed through 2017 and was developed by several partners, including The Nature Conservancy (TNC), Bureau of Land Management, DFG, Sacramento County, DWR, Ducks Unlimited, and the California State Lands Commission (Kleinschmidt Associates, 2008). The 45,859-acre preserve includes the Cosumnes River and its floodplains and riparian habitat. The CRPMP identifies two overarching goals and numerous subgoals.

The overarching goals of the CRPMP are (1) native biological communities and the resident and migratory species dependent on them are restored and maintained to sustainable conditions and population levels, and (2) compatible uses improve stewardship of the lands in the Cosumnes River watershed. Numerous subgoals were also established by the CRPMP. Those that may be applicable to the Conservation Strategy include:

- Actively manage the preserve, including implementing the flow augmentation project, collecting physical process data, regularly updating infrastructure databases, and collaborating with regional planning processes.
- Protect the free-flowing Cosumnes River within an ecologically functional landscape.
- Protect, maintain, and restore riparian and floodplain communities, the natural hydrologic processes that sustain the habitat, and the native species that depend on the habitat.
- Maintain and restore a mosaic of freshwater wetland habitats (seasonal and permanent) that support native species.
- Maintain and enhance the population of the giant garter snake in the Badger Creek watershed.
- Restore and maintain a population of fall-run Chinook salmon in the Cosumnes River, with an average annual spawning run of 2,000 adults (10-year average range of 1,000 to 5,000 adults).

Conservation targets were identified and include riparian forest, vernal pool grasslands, freshwater emergent wetlands, giant garter snake, blue oak woodland, and fall-run Chinook salmon. Quantitative objectives were developed for the subgoals and conservation targets, including the following subset:

- Maintain a landscape that supports natural processes and habitat for the Preserve's focal conservation targets consisting of natural lands and suitable agriculture at and surrounding the preserve (100-year floodplain up to Sacramento County's Urban Services Boundary).
- Permanently protect the entire 13,200-acre mapped riparian core area (existing habitat and restorable lands) by securing the remaining 7,450 acres of unprotected land up to Wilton Road.

- Restore an additional 1,000 acres of existing preserve lands to riparian and floodplain habitats by 2018.
- Maintain a minimum of 1,000 acres of seasonal managed ponds and evaluate the need for more managed wetland ponds on a case-by-case basis.
- Create and maintain at least 2,750 acres of flooded agriculture as seasonal wetland habitat for target species (sandhill cranes (*Grus canadensis*) and waterfowl).
- Restore and maintain at least 300 acres of seasonal floodplain habitat for juvenile salmonid rearing.

Conservation Strategy actions related to riparian habitat, as well as restoration of natural fluvial and geomorphic processes that would lead to the recruitment and sustainability of riparian communities, seasonal wetland habitat, and floodplain habitat, may contribute to the goals of the preserve. Conservation Strategy actions may contribute to the preserve's conservation objectives if they result in preserving, restoring, or enhancing giant garter snake aquatic or upland habitat or salmonid habitat within the Cosumnes River watershed.

2.1.11 Sacramento River National Wildlife Refuge Comprehensive Conservation Plan

The *Sacramento River National Wildlife Refuge Comprehensive Conservation Plan* (CCP) describes management of the 11,585-acre Sacramento River NWR (USFWS, 2005). The Sacramento River NWR consists of 26 units located along both sides of the Sacramento River stretching 77 miles between Red Bluff and Princeton, an area contained within both the SPFC Planning Area and Systemwide Planning Area. The refuge contains riparian and agricultural habitats and was established to preserve, restore, and enhance riparian habitat for threatened and endangered species, migratory birds, anadromous fish, and resident species. Riparian forests are being restored by converting flood-prone agricultural lands along the Sacramento River in cooperation with TNC, River Partners, and local farmers. The goal of the CCP related to habitat restoration and species conservation is to contribute to the recovery of endangered and threatened species and provide a natural diversity and abundance of migratory birds and anadromous fish, through the restoration and management of viable riparian habitats along the Sacramento River.

The measureable objectives of the CCP related to habitat restoration and species conservation include the following:

- Prepare and implement site assessment and restoration plans to restore an additional 3,255 acres of riparian vegetation and habitats, as well as maintain existing and newly restored riparian habitat for riparian-dependent species by 2015.
- Promote recruitment of fish and wildlife habitat by investigating riverbank stabilization, Sacramento River NWR levees, and floodplain topography for best management options. During this investigation, the Sacramento River NWR will consider impacts on public safety, agriculture, and water conveyance. This investigation will be conducted on 11 Sacramento River NWR units and a written report will be created by 2015.
- Evaluate the response of federal and California threatened and endangered species to habitat restoration projects. Implement eight surveys by 2005 (least Bell's vireo, VELB, bald eagle (*Haliaeetus leucocephalus*), giant garter snake, bank swallow, western yellow-billed cuckoo, willow flycatcher (*Empidonax traillii*), and Swainson's hawk) and four additional surveys by 2015 (winter-run Chinook salmon, spring-run Chinook salmon, fall-run and late-fall run Chinook salmon, and Central Valley Evolutionarily Significant Unit (ESU) of steelhead).
- Enhance, restore, and monitor breeding migratory and resident landbird populations to source population levels (40 percent recruitment) through habitat restoration on 3,255 acres by 2015. Source populations are those where recruitment (annual increase) is high enough to replace the local breeding population with a surplus, which can repopulate other areas. Source populations recruit at levels above 35 percent for most species.
- Provide high-quality habitat for native anadromous fish by enhancing and restoring 33.5 miles of shaded riverine aquatic (SRA) habitat for temperature control and future sources of large woody debris (LWD) by 2015. Where appropriate, enhance or restore floodplain topography and connectivity with the river at 11 units of the Sacramento River NWR by 2015.

The Sacramento River NWR is located within the SPFC Planning Area and Systemwide Planning Area. Conservation Strategy actions may include fee simple land acquisitions or easement acquisitions that could preserve riparian habitat within Sacramento County; these actions could contribute to the conservation goals of the CCP by providing additional habitat for the riparian species managed for in the Sacramento River NWR.

2.1.12 Sacramento, Delevan, Colusa, and Sutter National Wildlife Refuges Final Comprehensive Conservation Plan and Environmental Assessment

The *Sacramento, Delevan, Colusa, and Sutter National Wildlife Refuges Final Comprehensive Conservation Plan and Environmental Assessment* (CCP EA) describes management of the 10,819-acre Sacramento NWR, 5,877-acre Delevan NWR, 4,686-acre Colusa NWR, and the 2,591-acre Sutter NWR for the next 15 years (USFWS, 2009). The refuges provide habitat and manage for a number of species, including salmonids, giant garter snake, western yellow-billed cuckoo, and Swainson's hawk. The following are goals of the CCP EA that are related to habitat restoration and species conservation:

- Wildlife and Habitat Goal: Conserve, manage, restore, and enhance habitats and associated plant and wildlife species, with an emphasis on supporting an abundance and natural diversity of wintering and migrating waterfowl, shorebirds, birds of prey, and songbirds.
- Threatened and Endangered Species Goal: Conserve, manage, restore, and enhance threatened and endangered species and their habitats, including vernal pool plants and invertebrates, and giant garter snakes.

The following are measureable objectives of the CCP EA related to riparian habitat restoration and species conservation.

- Collectively on the four refuges, 16,914 wetland habitat acres have been actively managed since 2009 to provide 80 to 90 percent seasonally flooded wetlands and 10 to 20 percent summer wetlands. Seasonally flooded wetlands will contain 5 to 50 percent tall emergent cover, more than 50 percent desirable forage plant species cover, and an average water depth of 12 inches (range of 1 to 36 inches). Summer wetlands units will contain 20 to 70 percent cover of desirable submergent or floating-leaved emergent species. At least 50 percent of summer wetland units will have 30 to 80 percent tall emergent cover and average water depths of 24 inches (range of 12-36 inches) during May to October and less than 18 inches during November to April.

- Protect and enhance 581 acres of riparian habitat comprised of more than 80 percent native woody vegetation and herbaceous cover by 2014.
- By 2009, actively manage 1,500 acres within the Sutter Bypass portion of Sutter NWR to help prevent excessive accumulation of woody vegetation that may impact flood water conveyance capabilities.
- By 2014, annually implement BMPs and water management strategies to provide for native fish life cycle needs on the NWRs.
- Provide 11,152 acres (47 percent of the NWRs total acres) of wetland, vernal pool/alkali meadow, grassland, and riparian habitats as sanctuary (i.e., no public access) for general wildlife use, nesting, sensitive breeding sites, and plant populations by 2009.

The Sacramento, Delevan, Colusa, and Sutter NWRs are located within the SPFC Planning Area and Systemwide Planning Area. Conservation Strategy actions may include fee simple land acquisitions or easement acquisitions that could preserve riparian and wetland habitat within Sacramento County. These actions could contribute to the conservation goals of the CCP EA by providing additional habitat for the species managed for in the four refuges.

2.1.1 DWR's Oroville Facility Federal Energy Regulatory Commission License Protection, Mitigation and Enhancement Measures

The *FERC license for DWR's Oroville Facility* (FERC license) contains Protection, Mitigation and Enhancement Measures (PMEs) that address impacts of implementing the Oroville Facility under the new project license's 50 year license term (2006-2056) (DWR 2006). PMEs include the Lower Feather River Habitat Improvement Plan that describes programs for gravel supplementation and improvement, channel improvement, structural habitat supplementation and improvement, fish weir, riparian and floodplain improvement, and other programs in support of Chinook salmon and steelhead in the lower Feather River. Terrestrial species habitat improvements are provided for protection of giant garter snake and red legged frog, and vernal pool conservation. The PMEs and FERC license were subject to ESA consultation with NMFS and USFWS and CESA consultation with CDFG. Implementation of the lower Feather River Habitat Improvement Plan will provide beneficial coordination of the proposed measures in the lower Feather River.

The Lower Feather River Habitat Improvement Plan overlaps with the SPFC Planning Area and Systemwide Planning Area. The Conservation

Strategy is unlikely to make a significant contribution to the PME's required by the FERC license; however, it may benefit some of the covered species found within riparian and aquatic habitats in the lower Feather River and may be able to provide additional benefits above and beyond the PME's.

2.2 Regional Conservation Planning Efforts in Progress

Regional conservation planning efforts in progress also include HCPs and HCP/NCCPs, large-scale conservation programs, and recovery plans that are described in more detail below, including any defined goals and measureable objectives.

2.2.1 Bay-Delta Conservation Plan

The *Bay-Delta Conservation Plan* (BDCP) describes an integrated conservation strategy to achieve ecosystem restoration and water supply reliability (BDCP, 2010). It will serve as an NCCP under California's Natural Community Conservation Planning Act (NCCPA), and an HCP under Section 10 of the federal ESA. The BDCP will also provide the basis for biological assessments that support new ESA Section 7 consultations among Reclamation, USFWS, and NMFS. The BDCP is further intended to meet the standards set out in the recently enacted Sacramento-San Joaquin Delta Reform Act, which provides for incorporating the BDCP into a comprehensive management plan for the Delta (known as the "Delta Plan").

The BDCP planning area includes the statutory Delta, as defined in California Water Code Section 12220; Suisun Marsh; and the upper Yolo Bypass. The BDCP's list of proposed covered species and habitat conservation targets includes several species of likely concern for the Conservation Strategy, such as Chinook salmon and steelhead, riparian woodrat, riparian brush rabbit, least Bell's vireo, Delta button celery (*Eryngium racemosum*), Swainson's hawk, yellow-billed cuckoo, giant garter snake, and VELB, as well as the aquatic, riparian, floodplain, and wetland habitats used by these species (BDCP, 2010).

BDCP goals related to habitat restoration and species conservation are as follows:

- Provide for the conservation and management of covered species within the BDCP planning area.
- Preserve, restore, and enhance aquatic, riparian, and associated terrestrial natural communities and ecosystems that support covered species within the BDCP planning area through conservation partnerships. This includes restoration of 400 acres of nontidal wetlands, 5,000 acres of riparian habitats, and 5,000 acres of tidal habitats throughout the BDCP planning area.
- Allow for projects to proceed that restore and protect water supply, water quality, and ecosystem health within a stable regulatory framework.
- Provide a means to implement covered activities in a manner that complies with applicable State and federal fish and wildlife protection laws, including the California and federal ESAs, and other environmental laws, such as the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).
- Provide a basis for permits necessary to lawfully take covered species.
- Provide a comprehensive means to coordinate and standardize mitigation and compensation requirements for covered activities within the BDCP planning area.
- Provide a less costly, more efficient project review process that results in greater conservation values than project-by-project, species-by-species review.
- Provide clear expectations and regulatory assurances regarding covered activities occurring within the BDCP planning area.

With the exception of Suisun Marsh, the BDCP planning area is completely within the Systemwide Planning Area, and the Yolo Bypass lies within both the BDCP planning area and the SPFC Planning Area. The BDCP and the Conservation Strategy could be complementary pieces to a comprehensive conservation strategy for the entire Delta and Sacramento and San Joaquin valleys. It is likely that most, if not all, Conservation Strategy actions would contribute to the BDCP's conservation objectives, particularly those that occur within the Yolo Bypass or Delta. Conservation Strategy actions that could contribute to the BDCP conservation objectives

include the preservation or restoration of habitat for riparian and aquatic species, such as Chinook salmon and steelhead, riparian woodrat, riparian brush rabbit, least Bell's vireo, Delta button celery, Swainson's hawk, western yellow-billed cuckoo, giant garter snake, and VELB.

2.2.2 Solano Multi-Species Habitat Conservation Plan

Similar to other HCPs, the *Solano Multi-Species Habitat Conservation Plan* (SMSHCP) establishes a framework for complying with State and federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing O&M activities. The plan has a 30-year lifespan and covers approximately 585,000 acres, nearly all of which (577,000 acres) are in Solano County. The SMSHCP planning area extends into Yolo County to encompass facilities maintained by Reclamation District 2068, Dixon Resource Conservation District, and Dixon Regional Watershed Joint Powers Agency (JPA), as well as for restoration activities along Putah Creek (SCWA, 2009). The SMSHCP addresses 37 covered species, including salmonids, VELB, giant garter snake, and Swainson's hawk, which are also of interest to the CVFPP. Covered habitats include riparian, stream, and freshwater marsh. Conservation goals include the preservation, restoration, and management of approximately 32 miles of stream and riparian habitat within the plan area, and the preservation and restoration of a minimum of 50 acres of riparian habitat (SCWA, 2009).

The easternmost portions of the SMSHCP planning area along the Sacramento River and upper portions of the Delta overlap with the SPFC Planning Area and Systemwide Planning Area. Given the limited geographic overlap between the two planning efforts, the Conservation Strategy is unlikely to make a significant contribution to the conservation objectives of the SCMSHCP; however, it may benefit some of the covered species that would be found within riparian and aquatic habitats in the SCMSHCP planning area and adjacent parts of the SPFC Planning Area or Systemwide Planning Area (e.g., within the Lindsey Slough-Barker Slough-Cache Slough region).

2.2.3 South Sacramento Habitat Conservation Plan

The *South Sacramento Habitat Conservation Plan* (SSHCP) planning area will encompass approximately 374,000 acres within southern Sacramento County and include the cities of Elk Grove, Galt, and Rancho Cordova (County of Sacramento et al., 2010). Covered habitats include vernal pools, oak woodlands, grasslands, riparian, wetlands, and aquatic habitats, and 30 proposed covered species (10 of which are threatened or endangered under the federal or California ESA) including giant garter snake, VELB, vernal pool plants and invertebrate species, and other bird, raptor, bat, reptile, and

amphibian species. The SSHCP will serve as an NCCP under California's NCCPA, and an HCP under Section 10 of the federal ESA.

The strategy for the SSHCP includes requirements to:

- Create a reserve system over the permit term that will preserve a minimum of 41,923 acres and restore 1,786 acres of land that will benefit covered species, other native biota, and natural and naturalized land cover types.
- Configure the reserve system to protect landscape-level ecological processes necessary for covered species and other native biota.
- Integrate the reserve system into the existing network of open space (previously conserved lands) to a contiguous network of 9,500 acres of natural or naturalized habitats in the Urban Development Area (UDA).
- Establish preserve linkages within the reserve system that maintain connectivity between preserves in the planning area to sustain and enhance opportunities for genetic exchange and movement of native biota in the planning area.
- Guide preservation to primary conservation areas.
- Protect streams and creeks in the UDA through the establishment of stream setbacks.
- Establish a framework for long-term management of the reserve system for the benefit of covered species and other native biota

The SSHCP planning area has some overlap with the SPFC Planning Area and Systemwide Planning Area. The focus of the SSHCP is to protect and enhance wetlands (primarily vernal pools) and upland habitats; thus, the Conservation Strategy may not contribute directly to the goals of the SSHCP. However, Conservation Strategy actions would contribute to the overall SSHCP conservation objectives if they result in preserving or restoring aquatic or riparian habitat for covered species, such as giant garter snake and VELB.

2.2.4 Butte Regional Habitat Conservation Plan /Natural Community Conservation Plan

The *Draft Butte Regional Habitat Conservation Plan* (BRHCP) and *Natural Community Conservation Plan* (NCCP) planning area will cover approximately 560,000 acres of lowland and foothill oak woodlands in Butte County and all portions of the SPFC Planning Area and Systemwide

Planning Area within Butte County (BCAG, 2011). Covered habitats include riparian areas, wetlands, and aquatic habitats. The 41 proposed BRHCP/NCCP covered species include fishes (e.g., salmonids), as well as riparian-associated wildlife (e.g., yellow-billed cuckoo, VELB, bank swallow, Swainson's hawk), and wetland-associated species (e.g., giant garter snake) that would likely be Conservation Strategy targets. The draft plan identifies conservation objectives such as preserving covered species and their natural communities and ecosystems, contributing to the recovery of fish, wildlife, plant, and animal communities and species, and identifying and designating biologically sensitive areas. Measureable objectives for the draft plan include:

- Protect 6,370 acres of existing unprotected cottonwood-willow riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along rivers and streams distributed within the planning area
- Restore 536 acres of cottonwood/willow riparian forest, 140 acres of valley oak riparian forest, and 23 acres of willow scrub along rivers and streams distributed within the planning area
- To the extent consistent with flood control requirements, protect 20 linear miles of channel banks that support dynamic bank formation and erosion processes that create bank swallow nesting habitat along Big Chico Creek and Butte Creek

However, the BRHCP/NCCP notes the following (BCAG, 2011):

...although the Sacramento River and Feather River support habitat for several of the covered species in the Plan Area, BRCP goals, objectives, and conservation actions are not proposed for these rivers because the channels, banks, and flow of these rivers are controlled and managed predominately by state and federal agencies (e.g., California Department of Water Resources, U.S. Army Corps of Engineers, and Bureau of Reclamation).

Thus, riparian areas that would likely be a major focus of the Conservation Strategy are not of central importance to meeting the conservation objectives of the BRHCP/NCCP. As an example, the plan targets just 11 acres of riparian restoration along the Sacramento River. However, the BRHCP/NCCP also calls for salmonid aquatic habitat improvements, including protecting and improving 10 linear miles of steelhead habitat by removing passage barriers; the quality of spawning and rearing habitat is also a Conservation Strategy focus.

Any Conservation Strategy actions that involve restoration of riparian and wetland habitat, particularly along tributaries to the Sacramento River within Butte County (e.g., Butte Creek, Big Chico Creek, Sycamore Creek, Mud Creek), or that focus on removing fish passage barriers along these streams, may significantly contribute to the BRHCP/NCCP's conservation objectives. Restoration of riparian and wetland habitats and natural river processes along the Sacramento and Feather rivers, although not a major focus of the BRHCP/NCCP, would also contribute to the plan's conservation objectives by increasing the regional availability and quality of habitat for BRHCP/NCCP target species.

2.2.5 Yuba/ Sutter County Natural Community Conservation Plan/Habitat Conservation Plan

The Yuba/Sutter Natural Community Conservation Plan (YSNCCP) /Habitat Conservation Plan is in progress. To date, only the *Report of the Independent Science Advisors* (Spencer et al., 2006) is readily available. The proposed planning area comprises 200,100 acres and includes the majority of Sutter County and significant portions of western Yuba County as well as small portions of southern Butte County and northwestern Placer County (DFG, 2011). Twenty-one species are proposed (17 animals and 4 plants) for coverage under the plan, including the VELB, giant garter snake, Swainson's hawk, yellow-billed cuckoo, and bank swallow. YSNCCP/HCP covered natural communities and land cover types include riverine, riparian, and wetland habitats.

This YSNCCP/HCP planning area significantly overlaps with both the SPFC Planning Area and Systemwide Planning Area. The YSNCCP/HCP has not yet been formally developed and conservation objectives are unknown. However, covered activities within the YSNCCP/HCP are expected to include flood control projects, road improvements, irrigation improvements, and future development. The Conservation Strategy could contribute to the objectives of the YSNCCP/HCP given the overlap in activities. However, given the geographic overlap between the two programs and the overlap in target species and habitats, Conservation Strategy actions are likely to significantly contribute to YSNCCP/HCP objectives of preserving and restoring riparian and wetland habitat, and the species of plants and animals found in these habitats.

2.2.6 Yolo County Natural Heritage Program

The *Yolo County Natural Heritage Program* (YNHP) is a county-wide plan designed to provide for long-term conservation and management of sensitive and at-risk species and the habitats upon which they depend, while accommodating other important land uses. The plan, which is still under development, will serve as an HCP and NCCP and will cover

653,820 acres (YC HCP/NCCP JPA et al., 2004). The plan's goals and objectives are also still under development.

The YNHP HCP/NCCP will cover of a suite of species associated with riverine-lacustrine, emergent wetland, and riparian forest-scrub habitats; including VELB, yellow-billed cuckoo, bank swallow, and several riparian-associated songbirds. YNHP covered habitats potentially related to the Conservation Strategy include both riparian and wetland habitats. No fish species are covered by the YNHP.

The YNHP includes a Riparian Habitat Conservation Strategy, the goals of which are as follows:

- Ensure that the full range of riparian habitat conditions are conserved throughout the planning area
- Conserve lands and associated waterways that support natural or functional ecosystem processes, including hydrology, or where these processes can be restored or provided through management
- Create a riparian habitat network connected to conserved upland areas
- Incorporate a range of habitat patch sizes to provide for area-sensitive species and a “matrix” of conserved lands providing habitat within the working agricultural landscape
- Restore riparian functions and desirable conditions in areas dominated by invasive nonnative species
- Meet and maintain conservation goals for species covered under the YNHP
- Maintain ecosystem functions of conserved lands through monitoring and adaptive management
- Encourage landowner participation in riparian conservation through an incentive-based, collaborative program

Eastern sections of the county, comprising seven YNHP conservation planning units within the Colusa Basin, Yolo Basin, and West Sacramento, are within the SPFC Planning Area, and three additional conservation planning units along Putah and Cache Creeks are within the Systemwide Planning Area. Based on the extensive geographic overlap, target species, and habitat coverage between the two plans, the Conservation Strategy will likely contribute to the goals of the YNHP. While no specific goals for

riparian habitat acreage have yet been established, the Conservation Strategy could significantly contribute to the YNHP riparian goals, especially in the vicinity of the Yolo Bypass through various actions such as habitat restoration, habitat acquisition, and restoration of natural fluvial geomorphic processes.

2.2.7 Placer County Conservation Plan

The *Placer County Conservation Plan* (PCCP) will provide a framework to protect, enhance and restore natural resources in western Placer County (PCCDRA, 2011). The PCCP will achieve conservation goals while complying with State and federal regulations and accommodating urban and rural growth. The PCCP includes a joint NCCP/HCP and a County Aquatic Resources Program that will protect streams, wetlands, and other water resources and fulfill the requirements of the federal Clean Water Act and analogous State laws and regulations. Proposed covered species include riparian and aquatic species such as Swainson's hawk, bank swallow, giant garter snake, and salmonids.

Overall goals of the PCCP that align closely with Conservation Strategy objectives include the following:

- Sustain all natural communities that are currently present in the western Placer County landscape
- Partially restore or enhance certain natural communities and ecosystem processes and functions (in particular, aquatic and wetland ecosystems and riparian habitats overlap with Conservation Strategy objectives)
- Ensure population stability and sustainability of covered species and contribute to the recovery of those species
- Maintain connectivity between habitats across the landscape

Measureable objectives for conservation and management of riverine and riparian communities of the PCCP include:

- Protect stream reaches within the planning area to promote habitat function (i.e., water temperature and shade conditions suitable for covered fish), and movement of animals and plants (i.e., dispersal of seeds of riparian species) along riverine and riparian corridors that traverse the planning area
- Restore stream reaches that support covered fish, amphibians, and reptile species within the reserve system to improve natural community function, connectivity, and water quality

- Enhance stream reaches within the reserve system to maintain and improve ecosystem functions and connectivity between habitats
- Protect valley foothill riparian habitat within the reserve system to promote habitat function within riparian and riverine habitats, and facilitate wildlife movement across the planning area landscape
- Restore valley foothill riparian habitat within the reserve system to: connect fragmented riparian corridors; slow the movement of flood waters; allow the deposition of sediment to improve channel and bank formation processes; reduce sediment loading in river and stream systems; and improve habitat for covered species, including the creation of complex rearing habitat for covered fish species
- Enhance functional valley foothill riparian communities that benefit covered species and promote native biodiversity

PCCP covered activities include instream projects, infrastructure projects, O&M, and conservation strategy implementation. The initial permit term is proposed to be 50 years; 31 species are proposed to be covered (26 animals and 5 plants), including VELB, salmonids, giant garter snake, Swainson's hawk, and bank swallow. PCCP actions include the creation of a 30,000- to 50,000-acre reserve for the benefit of natural communities, covered species, biological diversity, and ecosystem function that, among other goals, will provide for timely restoration, protection, and management of riparian woodland and other wetlands.

The PCCP planning area includes approximately 212,000 acres in western Placer County, the vast majority of which lies outside the SPFC Planning Area and Systemwide Planning Area. Small areas of overlap occur along the Bear River in extreme western Placer County and around Folsom Reservoir. Although geographic overlap is limited between the two planning efforts, Conservation Strategy actions may contribute to PCCP conservation objectives. Potentially relevant actions would be those that contribute to the reserve system or that preserve, restore, or enhance areas adjacent to PCCP reserves and those that benefit covered riparian aquatic species such as VELB, salmonids, giant garter snake, Swainson's hawk, and bank swallow.

2.2.8 Butte Sink, Willow Creek-Lurline, and North Central Valley Wildlife Management Areas Comprehensive Conservation Plan

The USFWS is preparing a CCP for Butte Sink, Willow-Creek-Lurline, and North Central Valley Wildlife Management Areas (WMA) located within the Central Valley (USFWS, 2010). The 10,260-acre Butte Sink WMA, 5,795-acre Willow-Creek Lurline WMA, and the 14,740-acre North Central Valley WMA include both USFWS-owned lands and private lands protected with conservation easements. These WMAs were established primarily to preserve existing and restored wetlands for waterfowl and other wetland-dependent wildlife. The CCP planning area is located within the SPFC Planning Area and Systemwide Planning Area. The CCP's goals and objectives are still under development; thus, it is unknown whether the Conservation Strategy would contribute to the goals and objectives of the CCP.

2.2.9 Public Draft Recovery Plan for Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and Distinct Population Segment of Central Valley Steelhead

The NMFS Public Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run and Central Valley Spring-Run Chinook Salmon, and the Distinct Population Segment of Central Valley Steelhead, has been in draft form since 2009. Its primary goal is to improve the viability of these species and remove them from federal protection under the ESA. The draft recovery plan identifies recovery objectives and criteria based on attaining viable populations of each of the ESUs and district population segments (DPS) in specific geographic areas. Priority recovery actions include phased reintroduction of fish into primary candidate watersheds, restoration of ecological flows throughout the Sacramento and San Joaquin river basins and the Delta, large-scale Delta ecosystem restoration, restoration of ecological habitat function and decrease in nonnative fish predation, implementation of all phases of the Battle Creek Restoration Program and the SJRRP, and incentives for statewide water conservation, among other priorities. In addition, it specifies a recovery criterion of restoring and maintaining a continuous 100-mile stretch of riparian habitat and functioning floodplains of an "appropriate science-based width to maintain ecologically viable flood-prone lands along both banks of the Sacramento River between Colusa and Verona" (NMFS, 2009b).

The draft recovery plan area overlaps the SPFC Planning Area and Systemwide Planning Area, but the recovery plan area is larger and

includes many more miles of rivers and tributary creeks that provide rearing, migration, or spawning habitat for these species. Conservation Strategy actions may contribute significantly to the draft recovery plan; such actions are those that (1) restore floodplain habitat to support juvenile Chinook salmon and steelhead rearing (e.g., constructing new flood bypasses, expanding existing bypasses, setting back existing levees), (2) increase instream habitat suitability and complexity (removing bank revetment, modifying O&M practices), and (3) increase availability of SRA habitat.

2.3 Plans Identifying Specific Geographic Areas Without Quantifying Conservation Measures

Plans that are spatially defined but lack quantitative objectives are described below, and include recovery plans and other geographically based planning efforts.

2.3.1 Draft Recovery Plan for the Giant Garter Snake

The *Draft Recovery Plan for the Giant Garter Snake* describes conservation actions that, if implemented, could contribute to delisting the federally threatened giant garter snake (USFWS, 1999). The draft recovery plan contains several conservation actions, including protection of existing giant garter snake populations and habitat and restoration of populations to former habitat. The draft recovery plan estimates that giant garter snake could be delisted by 2028 if recovery criteria are met.

The draft recovery plan defines four recovery units in the Sacramento and San Joaquin valleys: (1) the Sacramento Valley Unit, extending from the vicinity of Red Bluff south to the confluence of the Sacramento and Feather rivers; (2) the Mid-Valley Unit, extending from the American and Yolo basins south to Duck Slough near the City of Stockton; (3) the San Joaquin Valley Unit, extending south from Duck Slough to the Kings River; and (4) the South Valley Unit, extending south from the Kings River to the Kern River Basin. Recovery Units 1 and 2 overlap with the SPFC Planning Area and Systemwide Planning Area as does the majority of Recovery Unit 3; Recovery Unit 4 lies outside the boundaries of both CVFPP planning areas.

The giant garter snake and its habitat (i.e., marshes, sloughs, and other perennial waters dominated by emergent, herbaceous vegetation as well as suitable brumation habitat above floodwaters) are the focus of the draft recovery plan; however, species that use wetland and marsh habitats within the Sacramento and San Joaquin valleys, such as tricolored blackbird,

white-faced ibis (*Plegadis chihi*), western pond turtle, and various species of waterfowl, would also likely benefit from implementation of the draft recovery plan.

Conservation Strategy actions that may contribute to the conservation objectives of the draft recovery plan include those that restore or enhance giant garter snake habitat outside floodways associated with major rivers of the Sacramento and San Joaquin valleys, and those that create suitable giant garter snake aquatic habitat by creating new flood bypasses or changing the operation of existing bypasses.

2.3.2 Draft Recovery Plan for the Least Bell's Vireo

The *Draft Recovery Plan for the Least Bell's Vireo* describes conservation actions that, if implemented, could contribute to reclassification of the least Bell's vireo from endangered to threatened, and ultimately, delisting (USFWS, 1998a). Instrumental to this strategy is securing and managing riparian habitat within the historical breeding range of the least Bell's vireo, annual monitoring and range-wide surveys, and research activities necessary to monitor and guide the recovery effort. A delisting target date was not projected in the draft recovery plan.

Historically, least Bell's vireo was widespread throughout riparian woodlands in the Central Valley and low-elevation riverine valleys of California. The breeding distribution of the least Bell's vireo is currently restricted to areas outside the SPFC Planning Area and Systemwide Planning Area in Southern California and Baja California, although singing birds have recently been recorded within the historical breeding range, for example in Yolo County. Within CVFPP planning area, potential least Bell's vireo habitat includes Caswell Memorial State Park (Stanislaus River), Cosumnes River Preserve, Bobelaine Sanctuary (Feather River), Butte Sink, Big Chico Creek to the mouth of Pine Creek, and the Sacramento River (Hanson Island to Parrot Landing, River Miles (RM) 170 to 181; Merrill's Landing at RM 212 to 215; and Woodson Bridge-Kopta Slough at RM 218 to 220).

The least Bell's vireo typically inhabits structurally diverse riparian areas, including cottonwood-willow forests, oak woodlands, and mule fat (*Baccharis salicifolia*) scrub. While the draft recovery plan focuses on the least Bell's vireo, implementing actions contained in the draft recovery plan could benefit other sensitive species found in San Joaquin and Sacramento valley riparian ecosystems, including VELB, yellow-billed cuckoo, bank swallow, and riparian brush rabbit.

Conservation Strategy actions that restore or enhance riparian and wetland habitat along major rivers of the Sacramento and San Joaquin valley could

contribute to the conservation objectives of the draft recovery plan. Conservation Strategy actions may contribute to the availability of suitable least Bell's vireo habitat in the Sacramento and San Joaquin valleys, if those actions result in (1) restoration of natural fluvial and geomorphic processes, such as meander migration, bank erosion, sediment deposition, and riparian habitat disturbance and succession (e.g., construction of setback levees, removal of levees, removal of bank revetment), and (2) active restoration of riparian habitat (i.e., planting trees and shrubs). Successful reintroduction of least Bell's vireo to the Conservation Strategy's SPFC Planning Area or Systemwide Planning Area may be enhanced by an expansion of potentially suitable riparian habitat.

2.3.3 Valley Elderberry Longhorn Beetle Recovery Plan

The *Recovery Plan for the Valley Elderberry Longhorn Beetle* (USFWS, 1994) summarizes the current literature on VELB, prescribes actions necessary to acquire additional biological data, and recommends actions necessary for species preservation, maintenance, and recovery. Primary objectives of the recovery plan are to protect the three known localities that support the species (at the time of plan development), survey riparian vegetation along certain Central Valley rivers for remaining VELB colonies and habitat, provide protection to remaining habitat within its suspected historic range, and determine the number of sites and populations necessary to eventually delist the species. According to the recovery plan, information on VELB life history, distribution, and habitat requirements is insufficient and, therefore, precise recommendations for its recovery are not provided. Additionally, the conditions under which the species can be considered "recovered" are to be determined.

Although the entire historical distribution of the VELB is unknown, extensive destruction of riparian forests of the Central Valley during the past 150 years strongly suggests that the species' range has decreased and become fragmented. At the time that the recovery plan was prepared, the VELB was known from only four locations within SPFC Planning Area or Systemwide Planning Area. After the recovery plan was prepared, VELB were located in suitable riparian habitat throughout the Systemwide Planning Area and SPFC Planning Area, and occasionally in oak woodlands and other nonriparian areas supporting the species' host plant, blue elderberry (*Sambuccus mexicana*). The USFWS is currently determining whether delisting is warranted based on additional information collected since the species was originally listed.

The recovery plan calls for protection of VELB habitat throughout riparian areas within the Sacramento and San Joaquin valleys, an area that overlaps the entirety of the SPFC Planning Area and Systemwide Planning Area as

well as areas outside their boundaries (e.g., the lower Kern River). Conservation Strategy actions that result in the preservation, protection, and restoration, or enhancement of VELB habitat (i.e., elderberry scrub and riparian woodland) associated with the major rivers of the Sacramento and San Joaquin valleys would significantly contribute to the conservation objectives of the recovery plan.

2.3.4 Bank Swallow Recovery Plan

The *Recovery Plan for the Bank Swallow* (DFG, 1992) describes specific management strategies for recovery of the bank swallow. The primary recovery goal is the maintenance of a self-sustaining wild population. Objectives are to ensure that (1) the remaining population of this species does not suffer further declines in either range or abundance, and (2) sufficient habitat is available to ensure that the species will be able to survive as a member of California's native avifauna. Enhancing existing populations and reestablishing populations in target areas are additional objectives. Specific habitat protection objectives include maintaining riparian vegetation on the Sacramento River between Chico Landing and Red Bluff and habitat acquisitions in the Sacramento River NWR and the upper Sacramento River where there are abundant bank swallow colonies. Setback levees allowing channel meander have also been identified as alternative recovery actions.

Conservation Strategy actions that result in the restoration or enhancement of riparian and wetland habitat associated with major rivers of the Sacramento and San Joaquin river valleys would potentially contribute to the conservation objectives of the recovery plan. Conservation Strategy actions may contribute to the availability of potentially suitable bank swallow nesting habitat in the Sacramento and San Joaquin river valleys, if those actions result in the restoration of natural fluvial and geomorphic processes, such as meander migration and bank erosion.

2.3.5 California Red-Legged Frog Recovery Plan

The *Recovery Plan for the California Red-Legged Frog* (USFWS, 2002) describes eight recovery units, so that recovery strategies can be tailored to each recovery unit to best meet the goal of delisting the species. The strategy for recovery includes: (1) protecting existing populations by reducing threats, (2) restoring and creating habitat that will be protected and managed in perpetuity, (3) surveying and monitoring populations and conducting research on the biology of and threats to the species, and (4) reestablishing populations of the subspecies within its historic range.

Two recovery units overlap with the SPFC Planning Area and Systemwide Planning Area: the Sierra Nevada foothills and Central Valley and the North Coast range foothills and western Central Valley recovery units. Core areas were identified within each recovery unit where recovery actions are focused. The core areas, when protected and managed for California red-legged frogs, will allow for long-term viability of existing populations and reestablishment of populations within the historic range. They were selected based on the following criteria: (1) occupied by California red-legged frogs, (2) where populations of California red-legged frogs are source populations, (3) areas that provide connectivity between source populations, and (4) that represent areas of ecological significance. Channelization and flood control maintenance degrade California red-legged frog habitat.

Conservation Strategy goals of increasing and improving the quantity, diversity, quality, and connectivity of riverine habitats through corridor management planning and easements in areas where recovery unit core areas have been identified (e.g., Yuba River, Feather River) could potentially contribute to the conservation objectives of the recovery plan. Conservation Strategy actions may contribute to the availability of potentially suitable California red-legged frog habitat in tributaries of the Sacramento River, if those actions protect suitable habitats and buffer areas long term through conservation easements, preserves, or mitigation banks.

2.3.6 Recovery Plan for Upland Species of the San Joaquin Valley, California

The riparian brush rabbit and riparian woodrat are addressed in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS, 1998b). Most of the 34 species addressed in the recovery plan occur in arid grasslands and shrublands; however, the riparian woodrat and riparian brush rabbit inhabit forested river corridors of portions of the San Joaquin River and its tributaries on the San Joaquin Valley floor. Potential conservation actions for the riparian brush rabbit include expansion of Caswell Memorial State Park and establishment of viable populations within the historical range through reintroduction, habitat restoration, and management of habitat. Potential conservation actions for the riparian woodrat include establishing habitat linkages between remnants of riparian habitat, reintroduction, habitat restoration, and habitat management. Conservation Strategy actions that include restoration or enhancement of riparian habitat in the San Joaquin Valley may contribute to the conservation of the riparian brush rabbit and riparian woodrat by increasing their population sizes and distribution in the San Joaquin Valley.

2.3.7 The Nature Conservancy Sacramento River Project

Through the *Sacramento River Project* (SRP), TNC and its partners, which include local landowners, nonprofit organizations, the California Department of Parks and Recreation, DWR, USFWS, and U.S. Army Corps of Engineers (USACE), are implementing projects to protect and restore riparian habitat on the Sacramento River between Red Bluff and Colusa (TNC 2011). TNC intends to preserve an additional 6,000 acres of land by 2015 within this reach of the Sacramento River and to restore riparian habitat, where appropriate, on these lands. Focus species include those that use riparian areas and SRA habitat along the Sacramento River, including VELB, salmonids, bank swallow, least Bell's vireo, yellow-billed cuckoo, and Swainson's hawk. The SRP area is wholly contained within the SPFC Planning Area and Systemwide Planning Area.

Conservation Strategy actions that may be implemented within this reach of the Sacramento River, such as construction of setback levees, removal of levees and bank revetment, habitat restoration, floodplain creation (including creation of off-channel habitats), and similar conservation actions, would make a significant contribution to TNC's goals for the SRP.

2.3.8 Sacramento River Conservation Area Forum

The *Sacramento River Conservation Area Forum* (SRCAF) is a nonprofit organization that evolved from California Senate Bill 1086, which called for creating a management plan to protect, restore, and enhance fisheries and riparian habitat along the Sacramento River. Since passage of Senate Bill 1086 in 1986, SRCAF has published numerous planning documents, including the following:

- *Upper Sacramento River Fisheries and Riparian Habitat Management Plan*, 1989 (USRFRHAC, 1989)
- *SRCAF Handbook*, 2003 (SRAC, 2003)
- *Draft Programmatic Safe Harbor Agreement* (ongoing, N.D.; SRCAF, 2009)
- *Strategic Plan* covering 2008 to 2011 (SRCAF, date unknown)

The Sacramento River Conservation Area defined in the 2003 SRCAF Handbook includes the Sacramento River from Verona (the confluence of the Feather and Sacramento rivers), upstream to Keswick Dam north of Redding. This area overlaps completely with the Systemwide Planning Area with a small portion near Verona extending into the SPFC Planning Area.

The goal of SRCAF is to preserve remaining riparian habitat and reestablish a continuous riparian ecosystem along the Sacramento River between Redding and Chico, and to reestablish riparian vegetation below Chico to Verona wherever possible. In achieving those goals, six principles are to be followed as actions are planned and implemented. Main ideas of the principles are as follows:

- Use an ecosystem approach that contributes to recovery of threatened and endangered species and that is sustainable by natural processes.
- Use effective and least environmentally damaging bank protection measures, and, where appropriate, operate within the parameters of local, State, and federal flood control programs.
- Operate within the parameters of local, State and federal flood control and bank protection programs.
- Recognize that landowners' participation is voluntary, never mandatory.
- Give full consideration to landowner, public, and local government concerns.
- Provide accurate and accessible information and education.

Conservation Strategy actions that could contribute to the conservation objectives of the SRCAF are any related to riparian habitat acquisition and restoration along the Sacramento River above Verona, as well as restoration of natural fluvial and geomorphic processes that lead to the recruitment and sustainability of riparian communities.

2.3.9 Comprehensive Management Plan for the Sacramento River Wildlife Area

The Sacramento River Wildlife Area (SRWA) encompasses approximately 3,770 acres of important riparian habitat located along a 70-mile reach of the Sacramento River. The SRWA includes 13 physically separate units that extend from RM 145 just north of the City of Colusa, upstream to RM 215, which is three miles south of Woodson Bridge near Corning.

Biological goals were developed in the *Comprehensive Management Plan for the Sacramento River Wildlife Area* to guide management based on maintaining natural riverine processes, and enhancing or restoring species populations or habitats (DFG, 2004). Biological element goals include:

- Preserving remaining riparian habitat and reestablishing a continuous riparian ecosystem along the Sacramento River between Red Bluff and Chico and reestablishing riparian vegetation along the river from Chico to Verona.
- Maintaining and enhancing habitat for special status species.
- Supporting natural processes that result in the creation and enhancement of habitat.
- Maximizing habitat value of the SRWA.
- Supporting scientific research and monitoring.
- Supporting the conservation of wildlife habitat on privately owned land along the Sacramento River.

Specific tasks were also identified to achieve the biological element goals. Management coordination element goals were also identified and include supporting the Hamilton City flood damage reduction and ecosystem restoration project.

Conservation Strategy actions related to riparian habitat, as well as restoration of natural fluvial and geomorphic processes that would lead to the recruitment and sustainability of riparian communities and habitat for special status species, would contribute to the goals of the SRWA.

Conservation Strategy actions may contribute to the overall goal of preserving remaining riparian habitat, reestablishing a continuous riparian ecosystem along the Sacramento River between Red Bluff and Chico and reestablishing riparian vegetation along the river from Chico to Verona, and supporting natural processes that result in the creation and enhancement of habitat.

2.3.10 Yolo Bypass Wildlife Area Land Management Plan

The Yolo Bypass Wildlife Area (YBWA) is composed of approximately 16,770 acres of managed wildlife habitat and agricultural land within the Yolo Bypass. The Yolo Bypass conveys seasonal high flows from the Sacramento River to help control river stage and protect the cities of Sacramento, West Sacramento, and Davis and other local communities, farms, and lands from flooding.

Biological goals were developed in the *Yolo Bypass Wildlife Area Land Management Plan* (LMP) to address specific biological elements, such as (1) including management and maintenance of habitat supporting the following species guilds: waterfowl, shorebird/wading birds, upland game

birds, raptors, cavity-nesting birds, neotropical birds, waterbird species associated with emergent marsh vegetation, and (2) maintaining and enhancing foraging opportunities for breeding colonies of bats (DFG and Yolo Basin Foundation, 2008). The goal for nonnative invasive species is to prevent introduction and spread of species that have no benefit to wildlife or impacts to special-status plants.

The goals include maintaining and enhancing communities for native species diversity and abundance, and restoring and enhancing communities to conditions that provide desired ecological functions. These goals apply to seasonal and permanent wetlands, riparian, grassland and upland vegetative communities, and aquatic ecosystems.

Management goals include coordinating federal, state, and local agencies regarding plans and projects that may affect habitats and/or management at the YBWA, and coordinating with flood control agencies regarding flood control and management in the Yolo Bypass.

The Conservation Strategy may contribute to the LMP goals, based on the extensive geographic overlap and target species and habitat coverage between the two plans. While no specific goals for riparian habitat acreage have yet been established, the Conservation Strategy actions may significantly contribute to the wildlife area's riparian goals in the Yolo Bypass through various actions such as habitat restoration, habitat acquisition, and restoration of natural fluvial geomorphic processes. Conservation Strategy actions may also contribute to increasing seasonal and permanent wetland habitats important for supporting the LMP's biological goals (species guilds).

2.3.11 California Water Plan

The *California Water Plan* (CWP), last updated in 2009, provides a planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public for making informed decisions about California's water future (DWR, 2009). The CWP is updated every five years and presents the status and trends of California's water-dependent natural resources; water supplies; and agricultural, urban, and environmental water demands for a range of plausible future scenarios. The CWP also evaluates different combinations of regional and statewide resource management strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship. Objectives of the CWP that may be relevant to the Conservation Strategy include:

- Promote, improve, and expand Integrated Regional Water Management to create and build on partnerships that are essential for California water resources planning, sustainable watershed and floodplain management, and increasing regional self-sufficiency.
- Use water more efficiently with significantly greater water conservation, recycling, and reuse to help meet future water demands and adapt to climate change.
- Advance and expand conjunctive management of multiple water supply sources with existing and new surface and groundwater storage to prepare for future droughts, floods, and climate change.
- Protect and restore surface water and groundwater quality to safeguard public and environmental health and secure California's water supplies for beneficial uses.
- Practice, promote, improve, and expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management systems.
- Promote and practice integrated flood management to provide multiple benefits including better emergency preparedness and response, higher flood protection, more sustainable flood and water management systems, and enhanced floodplain ecosystems.
- Set as co-equal goals a healthy Delta ecosystem and a reliable water supply for California and recognize the Delta as a unique and valued community and ecosystem to promote and practice management for a sustainable California Delta.

The CWP includes the entire state of California which, therefore, includes the entire SPFC Planning Area and Systemwide Planning Area. The Conservation Strategy would contribute to the objectives of the CWP because the objectives of both plans include flood management while promoting floodplain and instream protection and enhancement. The CWP can be used as a guide for developing recommended actions within the Conservation Strategy. As the Conservation Strategy is being developed, synergies between it and the CWP will be explored.

2.3.12 State and Regional Water Board Plans

The California State and Regional Water Boards are involved in several efforts within the Systemwide Planning Area, including the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Hart et al., 2011), *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Kapahi et al., 2006), and the *Wetland and Riparian Protection Policy* (DFG and SWRCB, 2011).

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Hart et al., 2006) provides numerical and narrative water quality objectives for fish and wildlife beneficial uses, and for agriculture, silviculture, recreational, fishing, municipal and industrial beneficial uses. The plan overlaps spatially with the SPFC and SPA, but its objectives are based on water quality, rather than habitat.

The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Kapahi et al., 2006) provides numerical and narrative water quality objectives for fish and wildlife beneficial uses, and for agriculture, municipal and industrial beneficial uses. Implementation measures include flow-based objectives: Delta outflows, river flows on the Sacramento River at Rio Vista, river flows on the San Joaquin River at Airport Way Bridge, Vernalis, export limits, Delta Cross Channel gates operation; and salinity objectives. The plan overlaps spatially with the SPFC and SPA, but its objectives are based on flows and water quality, rather than habitat.

The *Wetland and Riparian Protection Policy* 5-year coordinated work plan for wetlands conservation (DFG and SWRCB, 2011) describes a state-wide approach to wetlands conservation to be conducted by each agency. The WRCB identifies adoption of the Wetland and Riparian Protection Policy, which is under development, to occur in late 2012, providing the foundation for additional phases:

- Phase 1 includes developing a wetland definition, a regulatory mechanism for discharge of dredge and fill material to State waters, including wetlands, and an assessment method for collecting water quality and wetland data to monitor progress toward water quality and wetland protection and evaluate program development.
- Phase 2 expands the scope of the policy to protect wetlands from all other activities potentially impacting water quality, and includes identification of water quality objectives to support beneficial uses.
- Phase 3 will identify, protect, and promote restoration of riparian areas and their functioning to support water quality and beneficial uses,

including a definition for riparian areas and identification of water quality objectives to support beneficial uses.

As the Conservation Strategy is being developed, synergies between it and the Wetland and Riparian Protection Policy will be explored.

This page left blank intentionally.

3.0 References

Bay-Delta Conservation Plan (BDCP). 2010. Bay Delta Conservation Plan working draft. (Internet). (cited 15 July 2011). Available from: http://baydeltaconservationplan.com/BDCPPlanningProcess/ReadDraftPlan/ReadDraftPlan_copy1.aspx

BCAG. *See* Butte County Association of Governments

BDCP. *See* Bay-Delta Conservation Plan

Butte County Association of Governments (BCAG). 2011. Butte regional conservation plan HCP/NCCP 1st administrative draft. (Internet). (cited 15 July 2011). Available from: http://www.buttehcp.com/Document/1st_Admin_Draft_BRCP.html

CALFED Bay-Delta Program (CBDP). 2000. Multi-Species Conservation Strategy - Final programmatic EIS/EIR technical appendix. July 2000. (Internet). (cited 18 July 2011). Available from: http://www.dfg.ca.gov/ERP/envcomp_mscs.asp

California Department of Fish and Game (DFG). 1992. Recovery plan: Bank swallow (*Riparia riparia*). California Department of Fish and Game, Nongame Bird and Mammal Section, Wildlife Management Division. Nongame Bird and Mammal Section Report 93.02.

_____. 2004. Comprehensive Management Plan for the Sacramento River Wildlife Area.

_____ and Yolo Basin Foundation. 2008. Yolo Bypass Wildlife Area Land Management Plan.

_____. 2011. NCCP Plan Summary – Yuba/Sutter. (Internet). (cited 18 July 2011). Available from: <http://www.dfg.ca.gov/habcon/nccp/status/YubaSutter/>

California Department of Fish and Game and State Water Resources Control Board (DFG and SWRCB). 2011. Five year coordinated work plan for wetlands conservation program development.

California Department of Water Resources (DWR). 2006. United States of America before the Federal Energy Regulatory Commission. Explanatory Statement. Project No. 2100-052. (Internet). (cited 26

January 2012). Available from:
http://www.water.ca.gov/orovillereicensing/docs/settlement_agreement/Explanatory%20Statement%20on%20SA.pdf

California Department of Water Resources (DWR). 2009. California Water Plan: update 2009. Volume 1: the strategic plan. Bulletin 160-09. (Internet). (cited 1 December 2011). Available from:
<http://www.waterplan.water.ca.gov/cwpu2009/index.cfm>

CBDP. *See* CALFED Bay-Delta Program

Central Valley Joint Venture (CVJV). 2006. Central Valley Joint Venture implementation plan – Conserving bird habitat. Sacramento, California: U.S. Fish and Wildlife Service.

City of Sacramento, Sutter County, Natomas Basin Conservance (NBC), Reclamation District #1000, and Natomas Central Mutual Water Company (NCMWC). 2003. Final Natomas Basin habitat conservation plan. (Internet). (cited 15 July 2011). Available from:
http://www.natomasbasin.org/index.php?option=com_content&view=article&id=144&Itemid=118

County of Sacramento, City of Elk Grove, City of Galt, City of Rancho Cordova, Sacramento Regional County Sanitation District, Sacramento Area Sewer District, Sacramento County Water Agency, Southeastern Connector. 2010. South Sacramento Habitat Conservation Plan. Working Draft. (Internet). (cited 13 December 2011). Available from:
<http://www.southsachcp.com/Documents.aspx>

CVJV. *See* Central Valley Joint Venture

DFG. *See* California Department of Fish and Game

DFG and SWRCB. *See* California Department of Fish and Game and State Water Resources Control Board

DWR. *See* California Department of Water Resources

East Contra Costa County Habitat Conservation Plan Association (ECCCHCPA). 2006. The final East Contra Costa County habitat conservation plan/natural community conservation plan. (Internet). (cited 15 July 2011). Available from: <http://www.co.contra-costa.ca.us/depart/cd/water/HCP/documents.html>

ECCCCHCPA. *See* East Contra Costa County Habitat Conservation Plan Association

Hart, K., L. Hoag, K. Longley, S. Meraz, and D. Odenweller. 2011. Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin. Sacramento (CA): California Regional Water Quality Control Board, Central Valley Region. (Internet). (cited 23 January 2011). Available from: http://www.swrcb.ca.gov/rwqcb5/water_issues/basin_plans/sacsjr.pdf

Jones & Stokes. 2006. Final PG&E San Joaquin Valley Operation & Maintenance Habitat Conservation Plan. Prepared for Pacific Gas and Electric Company. (Internet). (cited 25 October 2011). Available from: http://www.fws.gov/ecos/ajax/docs/plan_documents/thcp/thcp_838.pdf

Kapahi, G., I. Baer, J. Farwell, D. Riddle, and G. Wilson. 2006. Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. Sacramento (CA): California Environmental Protection Agency, State Water Resources Control Board.

Kleinschmidt Associates. 2008. Cosumnes River Preserve Management Plan. Prepared for Cosumnes River Preserve, Galt, CA.

National Marine Fisheries Service (NMFS). 2009a. Biological opinion and conference opinion on the long-term operations of the Central Valley Project and State Water Project. (Internet). (cited 15 July 2011). Available from: <http://www.swr.noaa.gov/ocap.htm>

_____. 2009b. Public Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of Central Valley Steelhead. Sacramento, California: National Marine Fisheries Service, Sacramento Protected Resources Division.

_____. 2011. April 7, 2011 - Mr. Donald Glaser. (Internet). (cited 9 September 2011). Available from: http://swr.nmfs.noaa.gov/ocap/040711_OCAP_opinion_2011_amendments.pdf

NMFS. *See* National Marine Fisheries Service

Placer County Community Development Resources Agency (PCCDRA). 2011. Placer County Conservation Plan; Western Placer County. Agency Review Draft document; February 1, 2011.

Reclamation. *See* U.S. Department of the Interior, Bureau of Reclamation

Sacramento River Advisory Council (SRAC). 2003. Sacramento River Conservation Area forum handbook. Sacramento (CA): The Resources Agency, State of California.

Sacramento River Conservation Area Forum (SRCAF). (date unknown). Sacramento River Conservation Area Forum 2008-2011 Strategic Plan. (Internet). Red Bluff (CA): Sacramento River Conservation Area Forum; (cited 31 October 2011). Available from: http://www.sacramentoriver.org/srcaf/publications/strategic_plan_2011.pdf

_____. 2009. Sacramento River Conservation Area Forum programmatic Safe Harbor Agreement. (Internet). Red Bluff (CA): Sacramento River Conservation Area Forum; (cited 31 October 2011). Available from: http://www.sacramentoriver.org/srcaf/publications/SHA/SHA_SRCAF_Draft_11-23-09.pdf

San Joaquin County Council of Governments (SJCCG). 2000. San Joaquin County Multi-Species Habitat Conservation Plan and Open Space Plan.

San Joaquin River Restoration Program (SJRRP). 2009. San Joaquin River Restoration Program. (Internet). (cited 15 July 2011). Available from: <http://www.restoresjr.net/>

SCWA. *See* Solano County Water Agency

SJCCG. *See* San Joaquin County Council of Governments

SJRRP. *See* San Joaquin River Restoration Program

Solano County Water Agency (SCWA). 2009. Solano Multispecies Habitat Conservation Plan Administrative Draft. (Internet). (cited 15 July 2011). Available from: http://www.scwa2.com/Conservation/Habitat_FinalAdminDraft.aspx

Spencer, W., R. Noss, J. Marty, M. Schwartz, S. Gregory, R. Hansen, and G. Wylie. 2006. Report of Independent Science Advisors for Yuba and Sutter County Natural Community Conservation Plan/Habitat Conservation Plan. Prepared for County of Sutter.

SRAC. *See* Sacramento River Advisory Committee

SRCAF. *See* Sacramento River Conservation Area Forum

- The Nature Conservancy (TNC). 2011. California – Sacramento River. (Internet). (cited 15 July 2011). Available from: <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/california/placeweprotect/sacramento-river-1.xml>
- TNC. *See* The Nature Conservancy
- Upper Sacramento River Fisheries and Riparian Habitat Advisory Council (USRFRHAC). 1989. Upper Sacramento River fisheries and riparian habitat management plan. The Resources Agency.
- U.S. Department of the Interior, Bureau of Reclamation (Reclamation). 2004. Long-term Central Valley Project operations criteria and plan CVP-OCAP. (Internet). (cited 15 July 2011). Available from: http://www.usbr.gov/mp/cvo/OCAP/OCAP_6_30_04.pdf
- _____. 2011. 2011 Draft CVPIA Annual Workplans. (Internet). (cited 25 October 2011). Available from: http://www.usbr.gov/mp/cvpia/docs_reports/awp/2011/index.html
- U.S. Fish and Wildlife Service (USFWS). 1994. Draft recovery plan for the valley elderberry longhorn beetle. (Internet). (cited 15 July 2011). Available from: http://ecos.fws.gov/docs/recovery_plan/840628.pdf
- _____. 1998a. Draft recovery plan for the Least Bell's Vireo. (Internet). (cited 15 July 2011). Available from: http://ecos.fws.gov/docs/recovery_plan/980506.pdf
- _____. 1998b. Recovery plan for the upland species of the San Joaquin Valley, California. Portland (OR): U. S. Fish and Wildlife Service, Region 1.
- _____. 1999. Draft recovery plan for the Giant Garter Snake. (Internet). (cited 15 July 2011). Available from: <ftp://ftp.water.ca.gov/DES/BDCP/USFWS%201999%20GGS.pdf>
- _____. 2001. AFRP final restoration plan. (Internet). (cited 9 September 2011). Available from: <http://www.fws.gov/stockton/afrp/restplan/final.cfm>
- _____. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). Portland (OR): U.S. Fish and Wildlife Service.
- _____. 2005. Sacramento River National Wildlife Refuge; Final Comprehensive Conservation Plan. (Internet). (cited 24 October

2011). Available from: <http://www.fws.gov/sacramentovalleyrefuges/CCP/Final%20CCP%20for%20web.pdf>

_____. 2008. Formal Endangered Species Act consultation on the proposed coordinated operations of the Central Valley Project (CVP) and State Water Project (SWP). (Internet). (cited 15 July 2011). Available from: http://www.fws.gov/sacramento/es/documents/SWP-CVP_OPs_BO_12-15_final_OCR.pdf

_____. 2009. Sacramento, Delevan, Colusa, and Sutter National Wildlife Refuges; Final Comprehensive Conservation Plan and Environmental Assessment. (Internet). (cited 24 October 2011). Available from: <http://www.fws.gov/sacramentovalleyrefuges/CCP/Final%20CCP.pdf>

_____. 2010. Butte Sink, Willow Creek-Lurline, and North Central Valley Wildlife Management Areas – April, 2010 Planning Update #2. U.S. Fish and Wildlife Service.

_____. 2011. Joint Stipulation and Order Amending Schedule for Transmittal of Draft Smelt Biological Opinion. (Internet). (cited 8 November 2011). Available from: http://www.fws.gov/sfbaydelta/documents/SMELT_Doc_1061%20Order_on_BiOp_Sched_Sept_30_2011.pdf

USFWS. *See* U.S. Fish and Wildlife Service

USFRHAC. *See* Upper Sacramento River Fisheries and Riparian Habitat Advisory Council

YC HCP/NCCP JPA. *See* Yolo County HCP/NCCP Joint Powers Agency

Yolo County HCP/NCCP Joint Powers Agency (YC HCP/NCCP JPA), California Department of Fish and Game (DFG), and U.S. Fish and Wildlife Service (USFWS). 2004. Planning agreement No. 2810-2003-003-02 for the Yolo County NCCP/HCP. (Internet). (cited 15 July 2011). Available from: http://www.yoloconservationplan.org/yolo_pdfs/agreements/Yolo-planningagreement_2004-11-09.pdf

4.0 Acronyms and Abbreviations

AFRP	Anadromous Fish Restoration Program
AFSP.....	Anadromous Fish Screen Program
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin Delta
BDCP	Bay-Delta Conservation Plan
BO.....	biological opinion
BRHCP.....	Butte Regional Habitat Conservation Plan
BRHCP/NCCP.....	Butte Regional Habitat Conservation Plan/ Natural Communities Conservation Plan
CALFED.....	California Bay-Delta Program
CCP	Comprehensive Conservation Plan
CCP EA.....	Comprehensive Conservation Plan Environmental Assessment
CEQA.....	California Environmental Quality Act
Conservation Framework	Central Valley Flood System Conservation Framework
Conservation Strategy	Central Valley Flood System Conservation Strategy
Covered species.....	Species covered by an Habitat Conservation Plan
CRPMP	Cosumnes River Preserve Management Plan
CVFPP	Central Valley Flood Protection Plan
CVJV	Central Valley Joint Venture
CVP.....	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWP.....	California Water Plan
Delta.....	Sacramento-San Joaquin Delta
DFG.....	California Department of Fish and Game
DPS.....	distinct population segment
DWR	California Department of Water Resources

2012 Central Valley Flood Protection Plan
Attachment 9E: Existing Conservation Objectives from Other Plans

ECCCCHCP	East Contra Costa County Habitat Conservation Plan
ESA.....	Endangered Species Act
ESU.....	ecologically significant unit
HCP	Habitat Conservation Plan
HRP.....	Habitat Restoration Program
JPA	Joint Powers Agency
LMP.....	Land Management Plan
LWD.....	large woody debris
MSCS.....	Multi-Species Conservation Strategy
NBHCP.....	Natomas Basin Habitat Conservation Plan
NCCP	Natural Communities Conservation Plan
NCCPA.....	Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
NMFS.....	National Marine Fisheries Service
NWR	National Wildlife Refuge
O&M.....	operations and maintenance
OCAP	Operations Criteria and Plan
PCCP	Placer County Conservation Plan
PG&E.....	Pacific Gas & Electric Company
PG&E HCP.....	Pacific Gas & Electric Company, Habitat Conservation Plan
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RM	river mile
RPA.....	reasonable and prudent alternative
SJMSCP.....	San Joaquin County Multi-Species HCP
SJRRP	San Joaquin River Restoration Program
SMSHCP.....	Solano Multi-Species Habitat Conservation Plan
SPFC	State Plan of Flood Control
SRA.....	shaded riverine aquatic
SRCAF	Sacramento River Conservation Area Forum
SRP.....	Sacramento River Project

SRWA	Sacramento River Wildlife Area
SSHCP.....	South Sacramento Habitat Conservation Plan
SWP	State Water Project
TNBC.....	The Natomas Basin Conservancy
TNC.....	The Nature Conservancy
UDA	Urban Development Area
USACE.....	US Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VELB.....	valley elderberry longhorn beetle
WAP	Water Acquisition Program
WMA	Wildlife Management Area
YBWA	Yolo Bypass Wildlife Area
YNHP	Yolo County Natural Heritage Program
YSNCCP	Yuba/Sutter Natural Community Conservation Plan
YSNCCP/HCP	Yuba/Sutter Natural Community Conservation Plan and Habitat Conservation Plan

This page left blank intentionally.

